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Exploring the Potential of an Inventory Based on Social Cognitive Career Theory to Assess Preparedness for the Postsecondary Transition

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Exploring the Potential of an Inventory Based on Social Cognitive Career Theory to Assess Preparedness for the Postsecondary Transition

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Abstract

Background. The study was prompted by observation that failure to obtain a positive postsecondary destination is significantly more prevalent in young people living in areas of greater social deprivation, and in males rather than females. Previous studies have shown that this could be linked to differences in social cognitive factors. However, these studies have been mainly correlational and no comprehensive assessment instrument was found to assess preparedness for the postsecondary transition.

Aims. The present study examines senior high school student's perceptions of the personal, behavioural and environmental factors that affect them as they prepare to leave school. It reveals the structure of these factors and how they vary with regard to social deprivation and gender.

Sample. The participants were 1044 senior high school students (573 males and 471 females) who attended six urban high schools.

Method. A pre-empirical, 50-item assessment instrument was constructed based on the literature review to identify the wide range of factors previously shown to be relevant to achievement of a positive postsecondary destination. This was then administered to participants.

Results. Factor analysis indicated that young people's perceptions about leaving school were best represented by thirteen factors. An ANOVA model indicated that young people living in areas of higher deprivation reported significantly lower levels of positive postsecondary destination self-efficacy belief, less experience of vicarious career success, less performance of career development tasks, greater perception of career barriers, greater endorsement of a fixed career mindset, and fewer career scaffolding attachments. Males, compared to females, reported less experience of past career success, and fewer career scaffolding attachments. However, despite being at greater risk of a negative postsecondary destination, males reported higher levels of positive postsecondary destination self-efficacy belief, greater experience of positive career-related emotional arousal, greater ability to set career goals, and greater levels of career optimism.

Conclusion. Twelve significant main effects on the measured social cognitive factors have the potential to contribute to an explanation of why failure to obtain a positive postsecondary destination is more prevalent in young people living in areas of greater social deprivation, and in males rather than females. A new assessment instrument has been produced to inform an ongoing exploratory process to design, target and evaluate educational interventions to improve postsecondary destinations for all. Increasing internal consistency, external validity and generalisability of findings are all desirable. Some future interventions are proposed on the basis of the results, including greater use of positive career role models in career development programmes, career mindset retraining for high school students, and psycho-education on attachment-fostering behaviours for parents and professionals.

Declaration

I confirm that I am the author of this thesis.

I confirm that I have consulted with the references cited unless otherwise stated.

I confirm that the work of which the thesis is a record has been done by me.

I confirm that this thesis has not been previously accepted for a higher degree.

Signed……...…… Date: 20th June 2016

Chapter 1: Introduction

The need for a new approach to postsecondary educational psychology

This research study builds on two previous studies on school transitions carried out by the writer in collaboration with academic associates at the University of Dundee. Both of these previous studies employed a qualitative approach to analyse linked case studies carried out within the writers' professional practice context as an educational psychologist in a large urban education authority in Scotland. The first of these studies Jindal-Snape, Douglas, Topping, Kerr, and Smith (2005) involved interviews with parents and professionals involved with five specific children with Autism Spectrum Disorder about to make the transition from primary to secondary school. The aim of the study was to gain better insights into the perceptions regarding the various educational provisions on the specialist to mainstream continuum. This identified several factors deemed to be important regardless of the provision, including autism-specific training for teachers, curriculum modification and staff attitudes. The second paper was Jindal-Snape, Douglas, Topping, Kerr, and Smith (2006) which involved interviews of five young people and their parents using solution-focused interview techniques to explore what they found most helpful or hindering in enabling their transition from primary to secondary school. This showed that despite concerns about size and complexity of their new school, and the fact that in four out of five cases the transition arrangements were delayed, young people were positive about the transition but wanted real inclusion in school activities.

As discussed in the Accreditation for Prior Learning (APL) claim, it can be argued that the qualitative case study methodology used in these studies was particularly suitable for developing insights which were subsequently useful within the local research context in which the research was carried out. These insights were used to develop educational practice among the immediate stakeholders in that context including the writer, his immediate educational psychologist colleagues, speech and language therapists, parents, and of course, young people with ASD. However, it can be argued that it is difficult to make conclusions about the generalisability of these findings to other contexts on the basis of qualitative evidence from a small number of case studies. Therefore, one of the aims of this current study was to explore other

ways of generating evidence from educational psychology practice with a larger population of participants, which might then be replicated and tested for validity and internal consistency in larger national or even international populations.

It should also be noted that two significant changes have occurred within the practice context of educational psychology in Scotland since the publication of the original research papers upon which the APL claims for Modules 1 and 2 are based. Firstly, educational psychologists are now required to work with young people beyond the point at which they leave school, and must work to facilitate and monitor their transition into positive postsecondary destinations in education, employment and training. There is now a clear Scottish Government policy (Scottish Government, 2012a) for educational psychologists to work with children and young people up to the age of twenty-four years as opposed to nineteen years formerly. Secondly, educational psychologists are now required to work with the whole population of people up to the age of twenty-four rather than only those with identified additional support needs. As a result it is clear that these national developments are driving significant change in the way that educational psychologists work and provide a service to children and young people. Therefore, it is proposed that this should be reflected in the remaining research modules which are concerned with how educational psychologists should work to improve educational outcomes for the whole population of young people as they pass through the postsecondary transition and seek positive postsecondary destinations in education, employment and training.

The relationship between achieving a positive postsecondary destination and social deprivation

Skills Development Scotland (SDS), formerly known as the Careers Service, is required by the Scottish Government to collect data on the postsecondary destinations of school leavers.

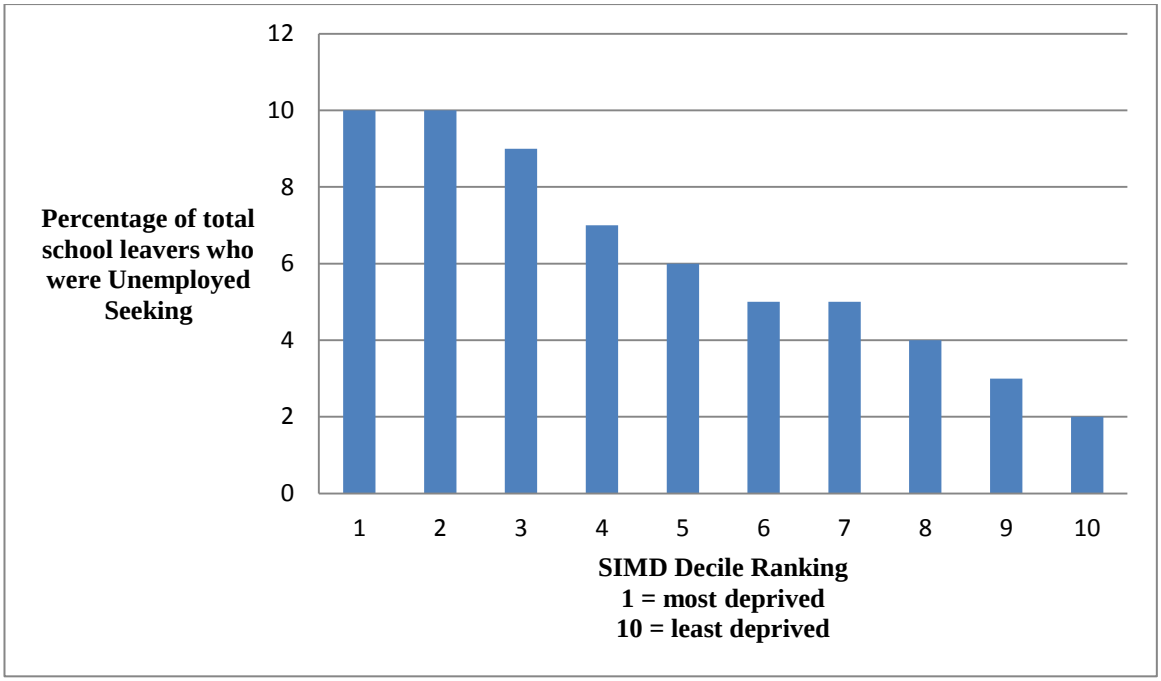

Figure 1. Percentage within each SIMD decile of the total Scottish school leaver population who were Unemployed Seeking on 6 October 2014 (14% of total with unknown SIMD Ranking), (Skills Development Scotland, 2014, p. 11)

The School Leaver Destination Return (SLDR) is a statistical return undertaken at national level by SDS which provides data on the postsecondary destinations of young people who left school between the 1 August and 31 July each academic year. This gives snapshot data for the young people who left school in the year 2013/14 taken on the 6 October 2014 (Skills Development Scotland, 2014). The report relates to 51,876 school leavers in Scotland from publicly funded secondary schools. Of these 3,268, which represented 6.3% of the total school leaver population, were recorded as Unemployed Seeking. This category included those young people in contact with SDS and who were known to them as being without an educational placement and seeking employment or training. This is, therefore, a good measure of those young people who did not have a positive postsecondary destination at the snapshot date of 6 October 2014. Data from the year 2013/14 is presented in Figure 1, which shows the percentage within each SIMD decile of the total Scottish school leaver population who were Unemployed Seeking on 6 October 2014.

It can be seen that the percentage of young people who did not achieve a positive destination after leaving school increased steadily as a function of the Scottish Index

of Multiple Deprivation (SIMD 2012). The SIMD (Scottish Government, 2012b) combines 38 indicators across seven domains namely: income; employment; health; education, skills and training; housing; geographic access and crime. The overall index is a weighted sum of the seven domain scores. It therefore provides a relative measure of deprivation, which means that its main output is in the form of SIMD rankings. These ranks can be used to compare data zones by providing a relative ranking from most deprived (rank 1) to least deprived (rank 6,505). These SIMD ranks are most commonly used by local and central government bodies by applying percentage cut-offs based on quintiles, deciles or vigintiles. These represent fifth, tenth, and twentieth portions respectively, of the whole population of Scotland in order to identify the most or least deprived segments of the population in relative terms. For example, the local authority which hosted the research routinely uses the number of children in a school population who live in postcodes designated as being in the lowest three vigintiles of SIMD to allocate additional teaching and support staff resources. In other words children designated to be in the most deprived 15% of the national population.

Figure 1 clearly shows that school leavers who live in the more deprived areas of Scotland were less likely to enter a positive destination on leaving school than those from less deprived areas. Of school leavers from the most deprived areas, 10% did not achieve a positive postsecondary destination compared to 2% of school leavers from the least deprived areas. However, what is not clear from these raw figures is the extent to which this effect could have arisen by chance. The first task of the empirical work of this study will therefore be to evaluate the statistical significance of this apparent relationship between the rate at which school leavers obtain a positive postsecondary destination and the relative deprivation status of the geographical areas in which they live. This statistical analysis can be found in the methods and results chapter of the thesis. It will be seen that this analysis confirmed that there is a statistically significant relationship between the rate at which school leavers obtain a positive postsecondary destination and deprivation as measured by SIMD.

The School Leaver Destination Return (SLDR) also provides data on the distribution characteristics of the Unemployed Seeking category of the leaver population itself.

This allows data to be presented on the percentage share of the total Unemployed Seeking category contributed by each SIMD decile rank. Data from the year 2013/14 is presented on this basis in Figure 2, which again gives snapshot data for the 6 October 2014 (Skills Development Scotland, 2014). It can be seen that school leavers from SIMD decile ranks 1 and 2 accounted for 17.5% and 15.3% respectively, of the total number of young people who failed to achieve a positive postsecondary destination in the national population. In contrast school leavers from SIMD decile ranks 9 and 10 accounted for only 4.9% and 3.3% respectively.

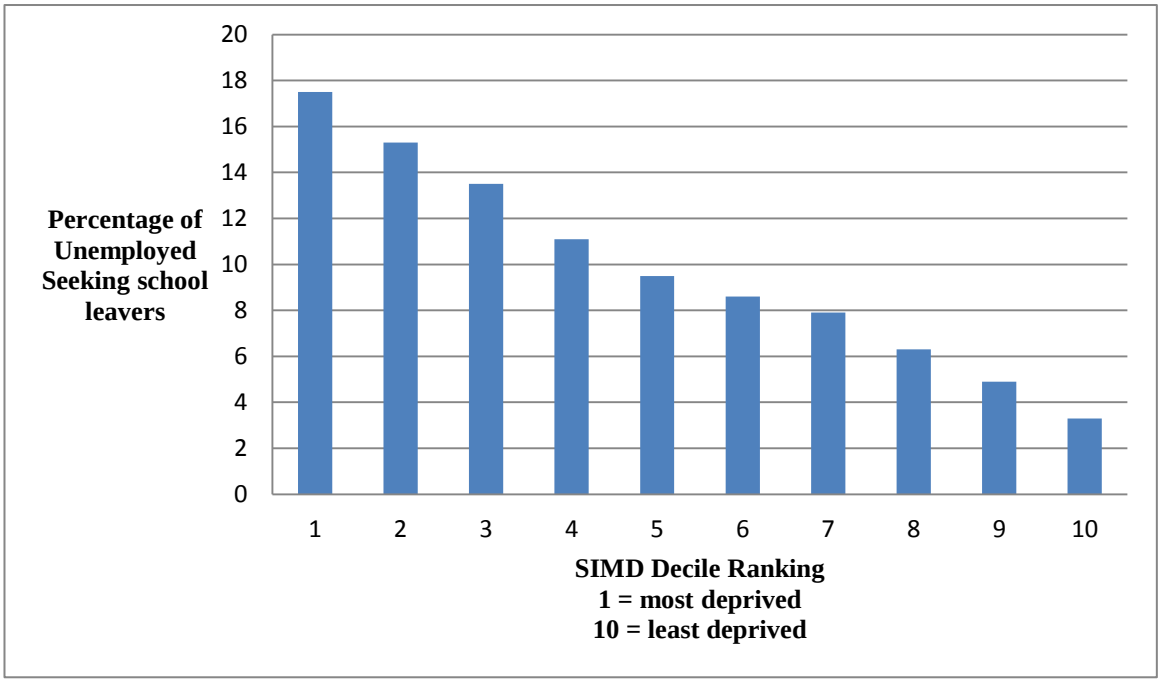

Figure 2. Percentage of Unemployed Seeking Scottish school leavers on 6 October 2014 shown by SIMD ranking (2.3% of total with unknown SIMD Ranking), (Skills Development Scotland, 2014, p. 19)

The broader issue of youth unemployment, and for that matter employment rates in general, have to be viewed against the background of the national and local economy, and the employment opportunities that they offer. However, the Scottish Government Opportunities for All policy (Scottish Government, 2012a) is that every school leaver should be guaranteed an offer of a positive destination on leaving school. This policy acknowledges that many young people will independently find their own positive destination in employment, education or training. However, there is a very wide range of schemes funded by the Scottish Government and delivered by

Skills Development Scotland and other government and non-government agencies to provide guaranteed positive first destination opportunities to young people. Many of these are specifically targeted at those young people who are assessed by their school to be at risk of not achieving a positive postsecondary destination. Many of these initiatives are also targeted specifically on geographical areas and local communities with high levels of deprivation.

In April 2011 (Skills Development Scotland, 2014, p. 5) the Scottish Government introduced the use of Activity Agreements across all local authorities in Scotland for all young people preparing to leave school who are assessed by their school as being at risk of a negative postsecondary destination. Activity Coaches are then assigned to provide individualised coaching input with these identified young people as they prepare to leave school and also through the school holidays, if required, to enable them to access supported and fully funded schemes. Since April 2011 this Activity Agreement category has been recorded separately and so removed from the headline category of "Unemployed Seeking". Therefore, it is important to recognise that those young people recorded within this category of Unemployed Seeking are likely to be without a positive postsecondary destination, because they were either unable or unwilling to engage with supported and fully funded opportunities and closely targeted initiatives.

The School Leaver Destination Return also provides data on the school leaver destinations split by gender at national level as shown in Figure 3 (Skills Development Scotland, 2014). This indicates that 1,995, which was 7.6% of the total of male school leavers, did not achieve a positive postsecondary destination compared with only 1,261, which was 4.9% of females. This represents a difference of 2.7 percentage points between male and female school leavers. (Skills Development Scotland, 2014, p. 9). This clearly shows that, in Scotland, male school leavers are 1.8 times more likely to have a negative destination than female school leavers.

However, again it is not clear from these raw figures the extent to which this effect could have arisen by chance. Therefore, it was an important early task for the empirical phase of this study to evaluate the statistical significance of this apparent

relationship between the rate at which school leavers obtain a positive postsecondary destination and gender. This statistical analysis can be found in the methods and results chapter of the thesis. It will be seen that this analysis confirmed that there was a statistically significant relationship between the rate at which school leavers obtained a positive postsecondary destination and gender.

Figure 3. Number of total Scottish 2013-2014 school leaver population who were Unemployed Seeking on 6 October 2014 shown by gender, (Skills Development Scotland, 2014, p. 9)

Therefore, in summary, the analysis of the national statistics on postsecondary destinations indicates that young people living in areas of higher social deprivation are significantly more likely to have a negative destination than young people from areas of lower social deprivation. It is also the case that male school leavers are significantly more likely to have a negative destination than females. Such large differentials within the population would seem to provide a substantial and urgent challenge for educational policy makers and practitioners. Furthermore, understanding the mechanisms between these large differentials with regard to social economic status (SES), and gender, may also provide helpful insights into the broader developmental processes that lead to success and failure in obtaining a positive postsecondary destination in the school leaver population as a whole.

The purpose and approach of the study

The purpose of this study is broadly threefold. Firstly, to begin to develop a concept of *preparedness for the postsecondary transition* that is both theoretically and operationally robust. Secondly, to construct and test a self-report inventory that can be used to explore and study the various aspects of this concept, particularly with regard to its relationship with socioeconomic status and gender. Thirdly, to begin the development of a collaborative tool that will continue to be used after this study is complete, by young people, parents and professionals to assess preparedness to leave school. This tool could then be used to inform collaborative and personalised interventions and action plans to promote positive postsecondary destination outcomes for the whole population of school leavers.

The momentum for the study comes also in response to observations that the writer has made in the course of his professional role as an Educational Psychologist working not only with the school leaver population but the whole population of children and young people from birth to twenty-four years. Chief among these is the observation that measured intellectual ability or even prior educational attainment are, at best, only a part of what enables an individual young person to move successfully from school to the postsecondary world of employment, education and training. Also important are a much wider range of social cognitive factors including what the young person is thinking, feeling and doing in relation to making the transition, and how these factors reciprocally interact and influence each other, and the social context in which the young person lives. These factors are to varying degrees independent of traditional measures of intellectual ability or prior educational attainment. These social cognitive factors are often crucial in enabling young people to respond to the particular challenges of leaving school to produce a trajectory of success in postsecondary education, employment and training; even in some cases from a previous trajectory of marked failure at school.

Conceptualisation and assessment of preparedness for the postsecondary transition

The issue of a substantial proportion of school leavers failing to find a positive destination in employment, education or training is significant in terms of the Scottish Government policy known as Opportunities for All (Scottish Government, 2012a). This policy is "an explicit commitment to offer a place in learning or training to every 16-19 year old in Scotland who is not currently in employment, education or training. It requires the post-16 learning system to re-engage young people between their 16th and 20th birthdays with learning or training" (Scottish Government, 2012a). It is hoped, therefore, that construction of an evidence-based assessment inventory will help to identify which particular interventions might be appropriate for which individuals and groups of individuals, to enable all young people to obtain a positive postsecondary destination.

It is also hoped that the appropriate content for this assessment inventory can be discovered by a process of literature review of the potentially relevant constructs from within Social Cognitive Career Theory as postulated by Lent, Brown, and Hackett (1994, 2000). If the inventory can be designed to identify areas of pre-existing strength, resources and coping style within a young person's functioning, these can be used as the basis for solution-focused and strengths-based intervention strategies. It is intended, therefore, that the ultimate product of the study will be an assessment tool that will function in an analogous way to other well respected, collaborative, developmental assessment tools such as Teaching Talking (GL Assessment, 2015a) and the Schedule of Growing Skills II (GL Assessment, 2015b).

However, while these tools can be used to collaboratively identify the proximal zones of development (Vygotsky, 1978) across a range of developmental domains for pre-school and primary school children, the proposed new assessment instrument will assess those developmental domains that have been found to be the most relevant to adolescent young people in achieving a successful transition from secondary school to postsecondary education, training or employment. This assessment instrument will be referred to in this study under the working title of the Preparing for Postsecondary Indicator (PrePI). However, in order to ensure that it is

fit for the assessment purpose, the proposed development of the PrePI will be approached through a procedure involving development of the concept of preparedness for the postsecondary transition, by means of a process of theory building, and validation through factor analysis. The main theoretical base for this process is Social Cognitive Career Theory (SCCT) as originated by Lent, Brown, and Hackett (1994, 2000).

This rationale will enable the proposed new instrument to reflect the component constructs of SCCT and also other associated constructs identified by a process of literature review. This progressive process of theory building and factor analysis will enable the constructs to be explored in terms of their empirically determined validity, as reflected in the responses of young people who complete the inventory. Therefore in summary this general approach will include five major phases as follows.

1. Conduct of a literature review to identify, describe, analyse and evaluate the various aspects of Social Cognitive Career Theory (SCCT) and related constructs reported in the literature as being related to the concept of preparedness for the postsecondary transition, and as directed by the writer's experience as an educational psychologist in practice.
2. The formulation of a pre-empirical concept of preparedness for the postsecondary transition based on the operational definition of those factors identified in the literature review.
3. The construction and exploratory factor analysis of a pre-empirical inventory designed to empirically examine the proposed concept.
4. The interpretation of the results and their implications for the development of the concept, based on the examination of the factorial validity of the inventory as reflected in young people's responses, and how this relates to pre-existing data on socioeconomic status and gender.
5. Development of a post-empirical inventory.

Definition of terms

The term *preparedness for the postsecondary transition* has been created in this study and could not be found anywhere in the research literature. Therefore it is here

defined as the broad social, cognitive, emotional and behavioural aspects of young people's functioning, beyond traditional ability measures, that enable them to move successfully from school to a positive postsecondary destination in education, employment or training. The term *postsecondary transition success factor* is used in this study to refer to a range of social, cognitive, emotional, behavioural and environmental/contextual aspects of young persons who are preparing to make the transition. It will therefore also broadly encompass the different ways in which young people think with regard to the postsecondary transition, and also ultimately the behavioural choices they make in respect to what they will do as they prepare for the postsecondary transition. It is recognised there are likely to be reciprocal effects among these factors and between these factors and the young person's environment/context.

Format of the thesis

Chapter 1 is the Introduction section and sets out the aims and organising rationale for the research. Chapter 2 is the Literature Review of the social cognitive literature in order to formulate a pre-empirical concept of preparedness for the postsecondary transition, based on operational definitions of proposed postsecondary success factors. Chapter 3 is the Methods and Results and gives information on how the pre-empirical inventory was constructed and tested in order to explore the pre-empirical concept of preparedness for the postsecondary transition together with its proposed structure and component items. It also describes the design of this current research study and presents the results obtained. Chapter 4 summarises the general conclusions that follow from the results and discusses the implications for a post-empirical concept of preparedness for the postsecondary transition together with a description of the post-empirical assessment inventory in terms of its validity and internal consistency. This section will also suggest how the new inventory may be used to collaboratively assess individual young people and inform interventions to improve postsecondary outcomes, in terms of destinations in employment, education and training for all young people leaving school. It is an aspiration that the post-empirical inventory will continue to be used and developed further, after this current study, by a range of other professionals and stakeholders in a national and perhaps international context.

Chapter 2: Literature Review

Scope of the Literature Review

The literature review will investigate some key constructs from Social Cognitive Career Theory as postulated by Lent, Brown, and Hackett (1994, 2000), and the theoretical linkages between them to determine their potential usefulness to the practical tasks of assessment and intervention with young people preparing to make the postsecondary transition. This will coordinate and analyse insights from research to help enable all young people to achieve positive postsecondary destinations in employment, education or training after school, as opposed to being disengaged and without a placement.

More specifically the questions guiding the literature review are: (a) why do some young people find it difficult to obtain a positive postsecondary destination; (b) why is this difficulty particularly linked to lower social economic status and male gender; (c) how should educational professionals conduct assessment; (d) how can the results of this assessment be used to implement appropriate evidence-based interventions? Therefore, the ultimate aim of this study is to help identify and remove potential social cognitive barriers, and enable the provision of appropriate supports to maximise equal opportunities for positive postsecondary destinations for the whole population of school-leavers. This should particularly include young people from lower social economic backgrounds, and both females and males, in respect of their specifically identified needs.

Literature review methodology and structure

On several occasions between July 2011 and November 2015 a range of databases were searched including: American Psychological Association (APA) PsycNET; Journal Store (JSTOR); Web of Knowledge; Elsevier SCOPUS; Medline, Elton B. Stevens Company (EBSCO); and University of Dundee Library Catalogue. Papers published from 1966 onwards were considered for inclusion, in order to give a helpful historical perspective on how theory and research in Social Cognitive Career

Theory has developed in the context of the generic social cognitive theory. The literature search was carried out on an iterative basis, which started off in a broad and general search, and then focused down on those areas which were considered to be most potentially useful to the stated broad aims of this study.

Therefore the first search in July 2011 used the following broad search terms to identify relevant literature: social cognitive theory; Social Cognitive Career Theory; postsecondary transition; leaving school; career development; school to college; school to university; school to work; leaving school, deprivation, socioeconomic status, gender, sex, male, female. This initial search enabled the writer to read widely in a large body of research informed by social cognitive theory and Social Cognitive Career Theory (SCCT), as they had been applied to the transition from school to postsecondary education employment and training.

This initial search therefore generated a supplementary list of search terms for a further stage in the literature search. These additional terms included a range of constructs related to SCCT including: self-efficacy; sources of self-efficacy, career outcome expectations, career goals, career performance, career attainment, career supports, career barriers, implicit self-theories, mindset, attributions, optimism, pessimism, and attachment. Given the wide range of social cognitive constructs which were judged to be potentially salient, combined with the binding constraint of the word limit, it was considered essential to be highly selective in the number of studies analysed and evaluated in each of the different identified construct areas. The aim of this approach was therefore to give a brief overview of the theoretical and empirical development of each construct that the literature review showed to be relevant. This was followed in each case by a more detailed analysis and evaluation of a smaller number of illustrative studies, judged to have the closest relevance to the aims of the current study.

It was found that a large proportion of the studies relating to the empirical testing of Social Cognitive Career Theory (SCCT) were carried out with university students in the USA, which by definition is a relatively advantaged population in terms of social economic status (SES). Therefore as a general rule, studies which involved participants in the final years of high school were prioritised, rather than those

involving university undergraduates, even although the latter were very much more numerous with respect to every construct reviewed. Therefore, two principal criteria were applied to the process of selection of which studies to include in the literature review. The first criterion was that, to be included, a study should have close domain-specific relevance to the target behaviour of being able to obtain a positive postsecondary destination. The second criterion was that, the study should involve senior high school children participants who were preparing for the postsecondary transition.

With regard to several of the constructs under study such as outcome expectations, goals, performing career tasks, optimism/pessimism, attributions, self-theories and attachment, this prioritisation strategy resulted in a rational and natural reduction to only one, two, or three closely relevant studies in total. This focused the review in a helpful way and avoided the problem of bias in the selection of studies. It also reduced the review task to manageable proportions, within the word limit. However, in other construct areas the number of papers found was greater than could be comprehensively reviewed within the word limit, even within the closely defined criteria of being of career specific domain relevance and involving school age participants. This was the case in the construct areas of self-efficacy, learning experiences, and contextual supports and barriers. In the case of self-efficacy, twenty studies were identified which met the criteria for high school participants but these studies focused on the construct of career decision-making self-efficacy. This group of studies were therefore given only very limited space in the review, as they were not considered sufficiently closely related to the specific self-efficacy behaviour target, of obtaining a positive postsecondary destination.

With regard to the constructs of career-relevant learning experiences, and contextual career supports and barriers, seven and ten studies were identified respectively. However, the decision regarding which of these studies to include in the literature review was made on the basis of the degree of domain-relevance to the target behaviour of obtaining a positive postsecondary behaviour. Where they existed, studies which investigated the impact of socioeconomic status or gender were given high priority for inclusion in the literature review. Those articles that sought to establish causal relationships, either by longitudinal designs or by laboratory

experimental methods were also given high priority for inclusion. In summary, therefore, studies were included on the basis of an objective judgement of the closeness of their relevance to the theoretical development of the concept of preparedness for the postsecondary transition. The aim of this was to enable a deeper analysis and evaluation of a manageable number of the most closely relevant studies.

The generic social cognitive model of triadic reciprocity

The generic social cognitive model of *triadic reciprocity* posits that human functioning results from a model of reciprocal determinism in which, personal factors including thinking and feeling are hypothesised to influence behaviours and environments, and are also in turn affected by them (Bandura, 1986). This is shown diagrammatically in Figure 4.

At a very broad conceptual level, it is possible to interpret this triadic reciprocity and apply it to the postsecondary transition. Therefore, this study is most concerned with the possibility of exploring the patterns in the personal, environmental and behavioural aspects of individuals that enable or hinder them to achieve a positive postsecondary destination in its broadest sense of being engaged in education, training or employment, as opposed to doing nothing and being disengaged upon leaving school. Therefore it is postulated that what young people are thinking and feeling about the postsecondary transition as they go through it, will influence the behavioural choices that they make. These behaviour choices are likely to be wide-ranging in terms of how the individual interacts with a range of others including: peers; parents; and professionals such as teachers, career professionals, potential employers and postsecondary education providers. These behavioural choices will in turn reciprocally interact with the school leaver's environment in terms of the learning and career experiences which are created or shut down.

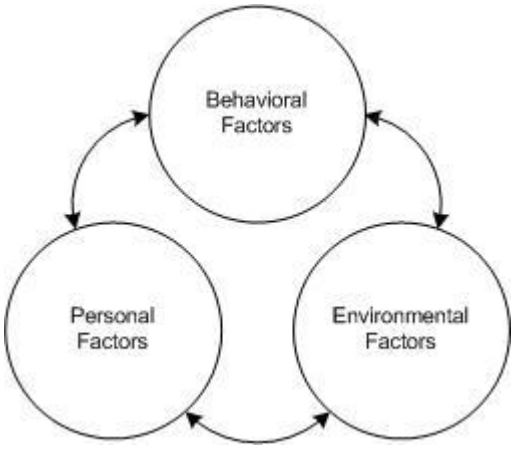

Figure 4. The social cognitive model of triadic reciprocity. After Bandura (1986)

Fundamental environmental factors associated with the young person's family, community and educational contexts will affect both the behavioural choices that they make and other personal factors including their thoughts and feelings. Bandura (1986) identified a wide range of personal factors within generic social cognitive theory including cognitive, vicarious, self-regulatory and self-reflective processes. However, in formulating Social Cognitive Career Theory (SCCT), Lent, Brown, and Hackett (1994) focused primarily on three key person variables including self-efficacy, outcome expectations and goals. As a means of introducing SCCT, each of these three key person variables will now be briefly defined in turn. Research evidence for their role in SCCT as it applies specifically to the postsecondary transition will also be analysed and evaluated in much greater detail later in the literature review.

Self-efficacy beliefs have been defined as "people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgements of what one can do with whatever skills one possesses," (Bandura, 1986, p.391). Bandura also noted that, "competent functioning requires both skills and self-beliefs of efficacy to use them", (Bandura, 1986, p.391). It has also been argued that self-efficacy beliefs are central and pervasive mechanisms in personal agency, which have been shown to determine a person's choice of behaviours and environments, as

well as the amount of effort and persistence a person will expend, and the emotional responses they will make in the face of aversive experiences and obstacles (Bandura, 1977, 1989).

Much of the strength of Bandura's (1977) original study on self-efficacy carried out with snake phobic participants was derived from the fact that self-efficacy beliefs were conceived as dependent variables, changes in which were measured in response to experimental manipulation of four hypothesised sources of the self-efficacy beliefs. These sources included: past performance, vicarious experience, social persuasion and emotional arousal. In Bandura's original 1977 study these hypothesised sources of self-efficacy beliefs were therefore accorded the status of independent variables in the experimental design. In this way, the important principle of causality was embedded into the construct of self-efficacy right from the beginning of its empirical conceptualisation and definition. Crucially, Bandura (1977) also showed that, in turn, these self-efficacy beliefs were causally related to domain-specific target behaviors including approach/avoidance, level of performance and persistence, with regard to tolerance of contact with snakes.

Gottfredson (2005) criticised what she considered to be an over emphasis of self-efficacy beliefs on the basis that it downplays the crucial importance of ability and aptitude in performance attainment. However, Bandura (1986) presented empirical evidence to support the hypothesis that the performance of individuals of the same ability level will be greater when higher levels of self-efficacy exist. Brown and Lent (2006) have argued that social cognitive theory does not propose that self-efficacy can compensate for poor ability. Indeed, Brown and Lent (2006) argued that self-efficacy beliefs that are significantly discrepant from ability in the other direction, to the extent that they indicate over confidence, can also be maladaptive and ultimately result in disappointment and hindrance. They argue that SCCT posits that career goals "might be most effectively and efficiently reached by aiding adolescents to……..acquire self-efficacy beliefs in areas of strength that are commensurate with ability but sufficiently challenging to foster further skills development ", (Brown & Lent, 2006, p. 215). This position is congruent with Bandura (1986) who argued that self-efficacy beliefs which moderately exceed existing objectively measured ability are most favourable in terms of their ultimate positive impact on performance levels.

Outcome expectation may be defined as an individual's beliefs about probable outcomes of performing a course of action (Bandura, 1986). It was postulated that outcome expectations involve the imagined results of successfully performing particular behaviours, (Bandura, 1986). The fundamental insight of Bandura's distinction between self-efficacy beliefs and outcome expectations was therefore that "people act on their judgements of what they can do as well as the likely effects of various actions" (Bandura, 1986, p. 231). It is important to note that Bandura (1986) also differentiated between several kinds of outcome expectations including physical (e.g. money), social (e.g. approval) and self-evaluative (e.g. satisfaction), all of which can significantly affect the target behaviour. Bandura also maintained that outcome expectations are more important contributors to behavioural choices in situations in which performance of behaviour does not guarantee outcomes (Bandura, 1986).

A goal was defined within generic social cognitive theory as a determination to engage in a particular activity or achieve a particular outcome. In terms of cognitions, goals are seen as a person's ability to symbolically represent desired future outcomes, which can then be used to evaluate their own subsequent behaviour (Bandura, 1986). It was postulated that goals are also important in self-regulation of behaviour. By setting goals an individual can exercise personal agency and so organise and sustain particular behaviours of their own choosing (Bandura, 1989).

These three key person variables of self-efficacy, outcome expectations and goals, will now be considered and evaluated in an introductory fashion together with a range of other person, behavioural and contextual variables as they were combined together within the framework of Social Cognitive Career Theory (SCCT) by Lent, Brown, and Hackett (1994, 2000). After this introductory consideration and evaluation of SCCT, a fuller range of person, environmental and behavioural factors within the SCCT framework will be analysed and evaluated in still greater detail later in the literature review.

The three core models of Social Cognitive Career Theory

In a highly influential paper, Lent, Brown, and Hackett (1994) used meta-analysis to interpret a wide range of previous career research evidence which had been carried out within Bandura's (1986) social cognitive framework. Lent et al. (1994) posited a unifying social cognitive theory of career interest, choice and performance. They entitled this Social Cognitive Career Theory (SCCT), which encompassed three interlocking, segmental models of how educational and vocational interests develop, how career relevant choices are made, and how career performance is attained. The interest, choice and performance models are shown in Figures 5, 6 and 7 respectively.

It can be seen that the three models are hypothesised to affect each other and therefore embody the triadic reciprocity between personal attributes, environment and behaviour, which is also central to generic social cognitive theory as postulated in Bandura (1986). Crucially, Lent, Brown, and Hackett (1994) argued that models of academic development often posited causal mechanisms that are similar to those used in models of career development, even although they typically appeared in different literatures, which sometimes resulted in their similarities being overlooked. Lent et al. (1994) reasoned that academic development effectively merged with career development, and therefore advocated the use of the term "career" to include academic development processes as part of wider vocational interest, choice and performance processes. On the basis of that rationale, Lent et al. (1994) attempted to provide a social cognitive career framework to organise existing findings in both educational and career development psychology literatures, and make predictions to guide future research. In doing this they incorporated a range of person, behavioural and environmental variables. Each of the interest, choice and performance models, as they were originally formulated by Lent et al. (1994), will now be analysed and evaluated in turn.

The career interest model.

In this first component model of SCCT shown in Figure 5, Lent, Brown, and Hackett (1994) defined career interests as the likes, dislikes and indifferences that are formed

in response to exposure to career relevant experiences. Lent et al. (1994) noted that these can be either direct or vicarious experiences. This is supported by Bandura (1986) and Lent, Larkin, and Brown (1989), who have shown that individuals form enduring interests in activities in which they view themselves as efficacious and for which they anticipate positive desired outcomes. In this way, Lent et al. (1994) elaborated on the generic social cognitive framework of Bandura (1986) to postulate that these emerging career interests led to the setting of goals for further activity exposure, which in turn produced attainments, which are then used to revise self-efficacy and outcome expectancy judgements.

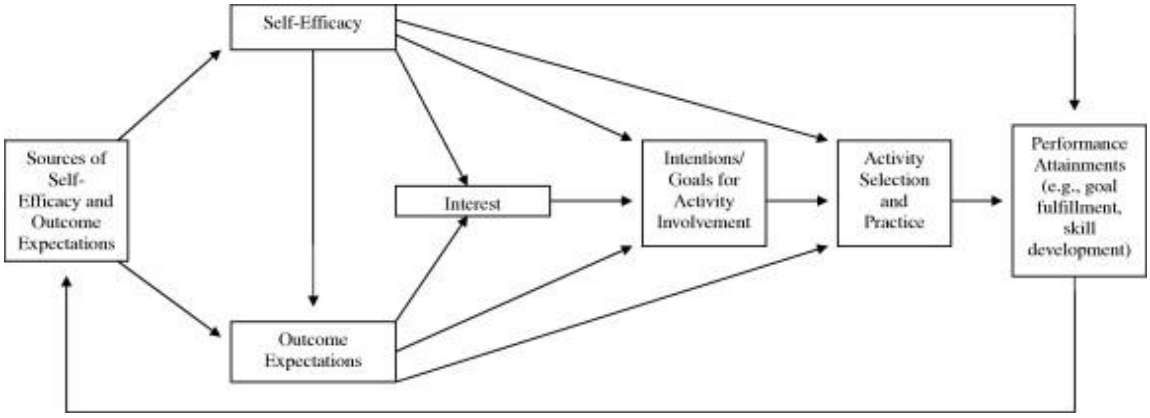

Figure 5. Model of how basic career interests develop over time. After Lent, Brown, and Hackett (1994)

Therefore, in essence, as shown in Figure 5, Lent, Brown, and Hackett (1994) hypothesised that individuals were likely to develop career interests and set career activity goals in domains in which they had a sense of self-efficacy, and in which they also had realistic expectations of attaining a desired outcome. This in turn informs their selection and practice of activities, which will result in experiences, which may subsequently be perceived as either success or failure, in terms of performance outcomes. As can be seen in Figure 5, Lent et al. (1994) posited that an iterative feedback loop is formed through repetition of this process.

In support of each of the three models within SCCT, Lent, Brown, and Hackett (1994) provided a brief meta-analytic review of pre-existing research with relevance

to the predictions of their basic models. They achieved this by averaging the correlation coefficients between measures of self-efficacy, outcome expectations, career interests, choice goals, ability, and career performance attainments, in a range of previously published studies. Each average correlation was based on at least three studies with sample sizes ranging from 339 to 1829. The averages were then weighted by the degrees of freedom in the original studies in order to reflect sample size.

With specific reference to the interest model, the results showed that the average correlation between self-efficacy and interests, based on 13 studies, was r=.53, p<.001. The average correlation between outcome expectations and interests, based on three studies, was r=.52, p<.001. Therefore, on the basis of these meta-analytic correlations, Lent, Brown, and Hackett (1994) concluded that self-efficacy and outcome expectations each account for 27% of the variance in career interests. The quality of the meta-analytic evidence on which this original formulation of the interest model was made, and also the evidence from subsequent empirical testing of the hypotheses contained in career interest model, will be analysed and evaluated in greater detail later in the literature review.

The career choice model.

Lent, Brown, and Hackett (1994) posited the career choice model, shown in Figure 6, as an extension of the interest model. It can be seen that in the choice model the goals for activity involvement are consolidated into choice goals together with the specific career-oriented actions required to make them happen. The choice model postulated that self-efficacy and outcome expectations combine to produce occupational interests, which lead to choice goals in the form of plans to pursue specific career paths. It is hypothesised that these plans, in turn, prompt goal-oriented actions in the form of specific career oriented activities. In the case of a high school student preparing to go through the postsecondary transition these goal oriented actions might include, for example, taking steps towards finding out about providers of educational and training courses or about potential employers.

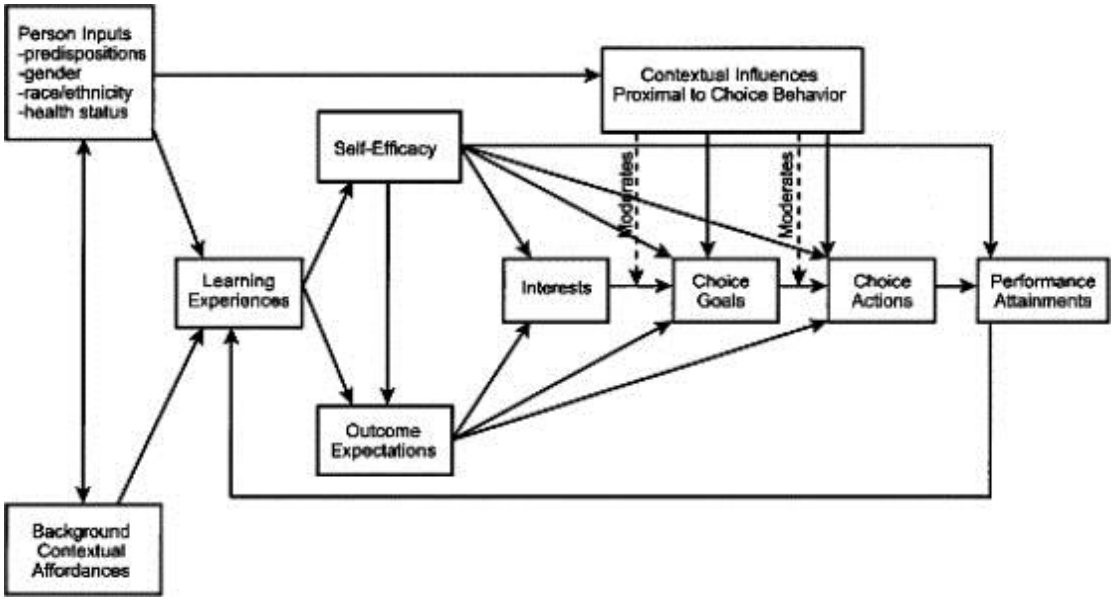

Figure 6. Model of person, contextual and experiential factors affecting career-related choice behaviour. After Lent, Brown, & Hackett (1994)

Lent, Brown, and Hackett (1994) made two core predictions within the career choice model. These included that an individual's career self-efficacy will affect career choice goals and career choice actions both directly and indirectly through interests. It was also predicted that an individual's career outcome expectations will affect career choice goals and career choice actions both directly and indirectly through interests.

As before, Lent, Brown, and Hackett (1994) used meta-analytic evidence to support these contentions, based on calculating weighted average correlations from the coefficients published in relevant pre-existing studies. The results showed that, based on eight studies, measures of career self-efficacy had an average correlation of r=.42, p<0.01 with measures of career choice goals. Based on three studies, measures of career outcome expectations had an average correlation of r=.42, p<.01 with measures of choice goals. Lastly, based on six studies, measures of career interests had an average correlation of r= .42, p<.01 with measures of choice goals. The quality of the meta-analytic evidence on which this original formulation of the choice model was made, and also evidence from subsequent empirical testing of the hypotheses contained in career choice model, will be analysed and evaluated in greater detail later in the literature review.

The career performance model.

In the third component of SCCT, the performance model, Lent, Brown, and Hackett (1994) built on the previous two models. In this model they postulated that success and persistence leading to performance attainment in career development tasks were influenced by a number of salient factors including: ability and past performance; self-efficacy; outcome expectations; and performance goals. This is shown in Figure 7, in which it can be seen that ability, as measured in past achievements, is hypothesised to influence performance attainment in two distinct ways.

The first hypothesis is that ability, as reflected in past performance, affects performance attainment directly. The second hypothesis is that the relationship between ability and performance is mediated through self-efficacy and outcome expectations. Self-efficacy in turn is also hypothesised to have both a direct and indirect effect on performance. In contrast, it can be seen that the effect of outcome expectations on performance is hypothesised to be entirely mediated through goals.

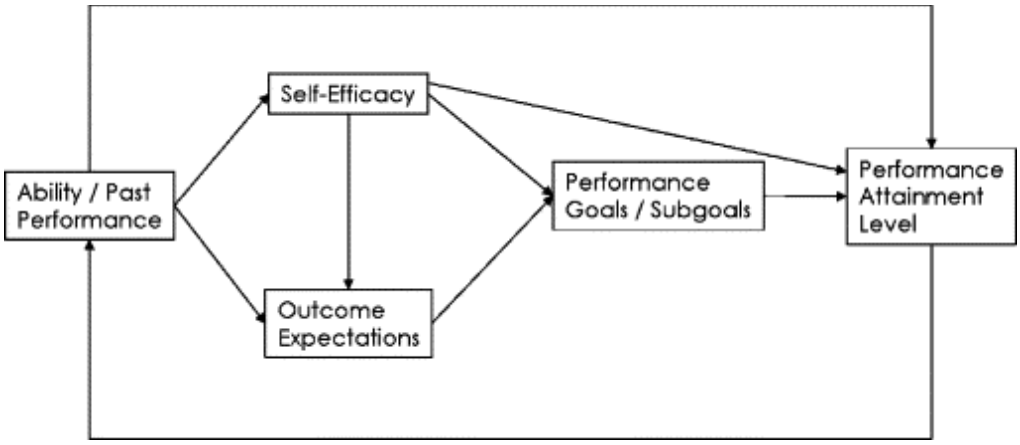

Figure 7. Model of task performance. After Lent, Brown, & Hackett (1994)

Once again, Lent, Brown, and Hackett (1994) used meta-analytic evidence, based on the weighted average correlations found in relevant pre-existing studies, to support the career performance model. The results showed that, based on nine studies, measures of career self-efficacy had an average correlation of r=.38, p<.001 with

measures of career performance. Based on eight studies, measures of career relevant ability had an average correlation of r= .34, p<.001 with measures of career performance.

Finally, based on three studies, measures of career outcome expectations had an average correlation of r=.10, p<.05 with measures of career performance. This latter correlation was very small and the fact that it was statistically significant is likely to be a function of large sample size. Therefore, the meaningfulness of this correlation in practical terms is likely to be slight, as such a correlation can only account for a small portion of the total variance. The quality of the meta-analytic evidence on which this original formulation of the performance model was made, and also evidence from subsequent empirical testing of the hypotheses contained in career performance model, will be analysed and evaluated in greater detail later in the literature review.

Additional contextual, learning experiences and person inputs within SCCT

It can be seen from Figure 6 that, beside the main personal cognitive inputs of self-efficacy, outcome expectations and goals; the career choice model also seeks to encompass three other major categories of input to the career development process. These include: features of the social, physical and cultural environment; career relevant learning experiences; and other person inputs such as gender. The way in which Lent, Brown, and Hackett (1994) sought to include each of these additional factors within the original formulation of the career choice model of SCCT will now be briefly analysed in turn.

Contextual factors in SCCT.

It can be seen that the choice model shown in Figure 6 also builds on the interest model to the extent that it begins to take account of contextual factors. Lent, Brown, and Hackett (1994) maintained that on their own, the career interest and choice mechanisms represented normative processes taking place in optimal conditions of voluntary control. However, the inclusion of contextual factors in the career choice model reflected that, in reality, familial, cultural and social economic factors are also

likely to have significant effects. Lent et al. (1994) referred to these latter factors as an "opportunity structure" within which career interests develop and career choices are made (Lent, Brown, & Hackett, 1994, p. 106). Therefore it is suggested that these contextual factors may constrain or strengthen the dynamic relationships between interests, choices, goals and performance actions.

A range of specific contextual factors are identified by Lent, Brown, and Hackett (1994) including job availability, economic conditions, perceived and actual barriers to career entry, perceived and actual support systems including financial and emotional supports. However, it is perhaps particularly significant that Lent et al. (1994) argued that, "Supports, opportunities and barriers - like beauty - lie partly in the eye of the beholder" (p. 106). This stance is consistent with the emphasis in generic social cognitive theory that, although the effect of objective environmental factors should not be minimised, cognitive processing and appraisal are also important in the subjective interpretation of contextual factors. For example, Bandura (1986) and Schunk (1989) each independently reasoned that experiential sources are filtered through various cognitive screens, which affect the ways in which such information is perceived, weighed and incorporated into thinking and behaviour.

Lent, Brown, and Hackett (1994) divided environmental factors into two sub-groups depending on how functionally close they are to career choice decision points. The first sub-group comprised what they termed *Background Contextual Affordances*. As shown in Figure 6, these were conceptualised as operating distally from career choice points. They were hypothesised to influence the occurrence and quality of learning experiences, for example, through task and role model exposure, and the availability of financial supports for engaging in particular activities. It can be seen from Figure 6 that Lent et al. (1994) posit that these processes directly influence self-efficacy and outcome expectations, which in turn influence interest formation and choice behaviours. The second environmental factor sub-group comprised what Lent et al. (1994) termed *Contextual Influences Proximal to Choice Behaviour*. As shown in Figure 6, these are conceptualised as coming into operation closer to critical choice points and might include, for example, personal career network contexts. However, Lent at al. (1994) argued that these distal and proximal contextual factors

are likely to have overlapping elements, and made specific reference to family and other social inputs in this regard.

Sources of career self-efficacy and career outcome expectations in SCCT.

In reflection of core generic social cognitive theory, Lent, Brown, and Hackett (1994) hypothesised that the four generic sources of self-efficacy information, proposed by Bandura (1977, 1986) within generic social cognitive theory, are also the fundamental contributors to career self-efficacy and career outcome expectations within SCCT. They are explicitly and specifically represented within the factor category of *Sources of Self-Efficacy and Outcome Expectations* within the interest model as shown in Figure 5. However, Lent at al. (1994) made it clear, within the text of their article that these generic social cognitive sources of self-efficacy and outcome expectations are also considered to be important in the choice model shown in Figure 6, under the more generic factor category of *Learning Experiences*.

As with the other components of the SCCT models, Lent, Brown, and Hackett (1994) used meta-analytic evidence, based on the weighted average correlations found in relevant pre-existing studies, to support their proposal that the four generic sources of self-efficacy beliefs proposed by Bandura (1977, 1986) are chief among the learning experiences which give rise to both career self-efficacy and career outcome expectations. The results of this meta-analysis showed that, based on three studies, measures of career-relevant past performance had an average correlation of r=.51, p<.001 with measures of career self-efficacy. Based on three studies, measures of career relevant vicarious experiences had an average correlation of r=.20, p<.05 with measures of career self-efficacy. Based on three studies, measures of career relevant verbal persuasion had an average correlation of r=.28, p<.01 with measures of career self-efficacy. Based on three studies, measures of career relevant emotional arousal had an average correlation of r=.4, p<.01 with measures of career self-efficacy.

However, it could be argued that a significant limitation of this evidence is that all three studies in this component of Lent, Brown, and Hackett's (1994) meta-analysis were confined to the sources of self-efficacy in the specific domain of mathematics

and science related careers. The quality of the meta-analytic evidence that Lent, et al. (1994) presented to support their postulation that the four generic sources of self-efficacy information, proposed by Bandura (1977, 1986) within generic social cognitive theory, are also the fundamental contributors to career self-efficacy and career outcome expectations within SCCT, will be analysed and evaluated in greater detail later in the literature review. However, it is immediately apparent that there is a clear limitation in the original formulation of SCCT, in that Lent et al. (1994) presented no evidence at all for their contention that these four different kinds of learning experiences are also fundamental sources for career outcome expectations.

Additional person inputs to SCCT.

Lent, Brown, and Hackett (1994) hypothesised that a range of additional *Person Inputs,* including what they term predispositions, gender, race/ethnicity and health status, also had a role in the choice model, as shown in Figure 6. These additional Person Inputs are conceptualised as having a direct influence on Contextual Influences Proximal to Choice Behaviour, and also on the more distal Background Contextual Affordances. It can be seen that they are also hypothesised to influence Learning Experiences directly. Significantly, from the perspective of the current study, it is at this point in the career choice model that Lent et al. (1994) hypothesised that gender can have an impact on career development. More specifically they argued that gender can influence the formation of interests and goals in regard to particular careers, largely through differential access to opportunities and supports, and also to gender socialisation processes. Although, from the perspective of the current study, it could be considered a significant weakness that Lent et al. (1994) did not include gender in their meta-analysis. However, some subsequent empirical studies which did investigate the effect of gender within a SCCT framework will be analysed and evaluated later in this literature review.

Also of particular relevance to the specific frame of reference of the current study, Lent, Brown, and Hackett (1994) argued that "socioeconomic conditions, such as extreme poverty, can powerfully affect career choice options based, in part, on their impact on other system elements such as learning experiences" (p.88). This

theorising is clearly of particular significance to the stated aims of this current study. However, it could be considered a significant limitation of SCCT, that Lent et al. (1994) did not elaborate further on how the key variable of social economic status (SES) might have such powerful effects on the career development processes. Neither do they make any indication about where SES might be located within the SCCT framework. Furthermore, it is also a noteworthy constraint, that having drawn attention to SES as having such powerful effects, Lent et al. (1994) did not seek to include this key aspect in their meta-analyses.

However, in a subsequent study, Ali, McWhirter & Chronister (2005) argued more explicitly that SES should be considered within SCCT as a key Person Input alongside gender. This contention would seem to have some considerable merit as, from this theoretical position within the Lent, Brown, and Hackett (1994) career choice model, SES, as in the case of gender, could have a direct influence on Contextual Influences Proximal to Choice Behaviour, and also a more distal influence on Background Contextual Affordances. From that position within the career choice model of SCCT, SES could also, in theory, produce its effects by influencing Learning Experiences directly. From that position in the model, by exerting an influence on proximal contextual factors, SES could also potentially impact on the hypothesised conversion process of interests to choices to goals, through several different mechanisms. For example, SES could influence the existence or lack of career-supporting networks of social contacts. Furthermore, through an impact on distal contextual affordances, SES could affect the learning experiences, for example, as a result of fewer career models. In addition, the degree of availability of financial resources, as a result of differences in SES, could possibly impact both distally and proximally. For example, at a distal level, differences in SES could affect the availability of informal learning experiences and opportunities such as travel and purchased cultural experiences. At a proximal level, SES could affect the ability to take advantage of formal career opportunities, due to the existence of financial factors such as fees and maintenance expenses. Empirical studies which shed further light on these possibilities will be analysed and evaluated in more detail later in the literature review.

However, in summary, it is clear from the general theoretical analysis above, that Lent, Brown, and Hackett (1994) postulated that environmental factors in general have two potentially powerful effects. At a distal level they shape learning experiences which influence personal cognitions, which in turn influence interests and choices. At a proximal level they can either support or compromise the opportunity structure, within which career plans are made and implemented. Therefore, it could be argued that it is these SES and gender related aspects of SCCT, as originally formulated by Lent et al. (1994), which are of central relevance to the aims of this literature review. Conceiving of SES and gender as operating as key Person Inputs within SCCT means that they could have their observed powerful effects on success and failure to attain a positive postsecondary destination in education, employment or training by exerting a pervasive influence on distal and proximal contextual factors, and also on learning experiences directly. For that reason, a range of subsequent empirical studies, which built on the attempts of the original formulation of SCCT by Lent et al. (1994) to capture the effect of SES and gender within a SCCT framework, will be analysed and evaluated in considerable detail later in this literature review. In order to prepare the way for that, the essential strengths and potential weaknesses of the original formulation of SCCT by Lent et al. (1994) will now be concisely reviewed and summarised.

Formative evaluation of the original formulation of SCCT

It could be argued that there are some significant limitations within the meta-analytic methodology employed by Lent, Brown, and Hackett (1994). For example, the component studies on which their meta-analysis was based are not described or referenced individually in sufficient detail to allow a thorough analysis of the design, sampling, and psychometric characteristics of the measures used in the underlying studies. It is therefore not possible to objectively evaluate how much confidence can be placed on the findings of these underlying studies. Lent et al. (1994) acknowledged that the studies they included in their meta-analyses had a very heavy reliance on university student populations in the USA, which were likely to be heavily skewed towards higher than average levels of SES. This limitation has clearly prevented Lent et al. (1994) from testing the relationships between the SCCT

variables under conditions of limited economic and constrained educational opportunities, which are of crucial relevance to the current study.

As has been pointed out, there are very significant gaps in the empirical meta-analytic evidence presented by Lent, Brown, and Hackett (1994) with regard to SES and gender, which is also a major limitation from the perspective and aims of this study. Unfortunately, the hypotheses that Lent et al. (1994) made about where and how SES and gender may have their effects on career development can only be considered as tentative and provisional, based on the limited evidence that they present in their original formulation of SCCT. However, perhaps the most fundamental limitation of the original formulation of SCCT is that it was based exclusively on meta-analysis of correlational studies which, by their intrinsic nature, cannot provide evidence of causation or directionality. This could be viewed as a highly significant weakness, as the whole underlying rationale of SCCT is that there are directional, causal links between a series of person factors, and also that a range of other environmental variables *cause* modifications in these relationships. It could be argued that evidence of causality and directionality can be best achieved through studies which employ an experimental or quasi-experimental design. It is a particularly significant weakness, therefore, that such studies are entirely absent from the Lent, Brown, and Hackett's (1994) meta-analytic review.

Nevertheless, it would appear that the basic formulation of SCCT provides a very useful framework within which to develop the concept of preparedness for the postsecondary transition, which is the aim of this thesis. The SCCT framework could also be a very helpful theoretical structure within which to consider and identify appropriate component constructs for inclusion in an inventory to assess the concept of preparedness for the postsecondary transition, particularly in relation to the large observed disparities in attainment of a positive postsecondary destination with regard to SES and gender. Therefore, in order to provide a still sharper focus to this literature review, the most salient of the subsequent studies in which SCCT was empirically tested with high school students preparing to make the postsecondary transition, will now be analysed and evaluated in greater detail.

Self-efficacy beliefs about achieving a positive postsecondary destination

Bandura (2006) has emphasised that measures of self-efficacy beliefs have maximum validity and reliability only when formulated as domain-specific beliefs. It has also been emphasised how important it is to measure self-efficacy in appropriate ways. For example, it has been stressed that, "scales of perceived self-efficacy must be tailored to the particular domain of functioning that is the object of interest" (Bandura, 2006, p.308). Within the context of career development, Betz and Hackett (2006) have supported this generic position, and argued that career self-efficacy beliefs are indeed highly domain-specific. Guidelines for a standard methodology for the measurement of self-efficacy beliefs has also been advocated, which recommended presenting participants with closely targeted items portraying the target behaviour in exact terms, and then enabling participants to rate the strength of their belief that they can execute the requisite actions (Bandura, 2006).

It has also been highlighted that self-efficacy is concerned with perceived capability and so measurement scale items should be phrased as *can do* rather that *will do* (Bandura, 2006, p.308). In addition, it has been recommended that participants should be given the opportunity to record the strength of their belief on a 100-point scale, ranging in 10 point intervals, from 0 (Cannot do) through intermediate degrees of assurance, 50 (Moderately certain can do); to 100 (Highly certain can do). The rationale for the 100-point scale is that using a shorter scale loses differentiating information because people who use the same response category may actually differ if intermediate steps are included (Bandura, 2006). The practical value of this recommendation has been tested empirically by Pajares, Hartley, and Valiante (2001), who measured student's writing self-efficacy using both a traditional 1-6 Likert response scale and a longer 0-100 scale. This investigation demonstrated a statistically significant improvement in prediction of students' precise target behaviours, as measured by their writing grade point average, when self-efficacy was measured using the 0-100 scale, as compared to the traditional 1-6 Likert sale.

Moreover, it has been contended that many self-efficacy instruments found in the literature measure a "pseudo" self-efficacy due to three common errors. These are specifically identified as: confusion with other domain-general constructs such as

self-concept or self-esteem; failure to understand the context-specific nature of self-efficacy beliefs; and failure to ensure close correspondence between the measured self-efficacy belief and the target behaviour it predicts (Bong, 2006).

Two studies were identified in the literature which investigated the construct of self-efficacy beliefs in ways that had particularly close relevance to the aims of this study, in terms of domain-specificity; participants; and the relationship with other measured factors, including SES. The first study of close relevance to positive postsecondary destination self-efficacy beliefs was Ali, McWhirter, and Chronister (2005) who worked with 114 ninth-grade high school students with a mean age of 14.7 years, from a single school in North West Pacific area of the USA. They used the Vocational/Educational Self-Efficacy Scale (VESES), which was custom designed for the study, to assess high school student's confidence in their ability to complete a variety of tasks pertaining to college attendance, vocational training, and obtaining a job after high school. A copy of this instrument was obtained in a complete form from one of the authors (S. R. Ali, personal communication, May 25, 2012). The format of the instrument contains the stem question, "How much confidence do you have that you could:" followed by 19 different items. Examples of items were, "Find information about applying to colleges and universities", "Know what to expect at a job interview", and "Find a job after high school." Responses were made on a 9-point confidence scale rather than the 0-100 scale. Therefore, it is possible that this use of a truncated scale may have resulted in the loss of discrimination and predictive power, as shown in principle by Pajares, Hartley, and Valiante (2001). However, the employment of scale endpoints of *no confidence at all* to *complete confidence* would appear to broadly comply with best practice, in this regard, as advocated by Bandura (2006).

Ali, McWhirter, and Chronister (2005) measured SES using a 9-point occupational factors scale devised by Hollingshead (1975), which is based on parental self-reports of their educational and occupational status. On the basis of this measure, 70% of students in the study sample were classified as being of lower SES. The results were analysed firstly by means of examining simple correlations and then by carrying out two separate hierarchical regression analyses. In terms of the simple correlation analysis, SES showed a statistically significant correlation with

Vocational/Educational Self-Efficacy (r=.42, p<.05), with higher SES being associated with higher vocational/educational self-efficacy. However, in terms of the first hierarchical regression analysis, it is reported that SES did not account for any additional, unique variance in Vocational/Educational Self-Efficacy after consideration of perceived supports and perceived likelihood of overcoming barriers.

However, it is possible to criticise the analysis carried out by Ali, McWhirter, and Chronister (2005) on the grounds that the finding that SES does not have an additional and unique effect on Vocational / Educational Self-Efficacy could be an artefact of the order in which the factors were entered into the regression equation. The order of entry into the equation chosen was: firstly, perception of supports; followed by perceptions of the likelihood of overcoming barriers; followed by SES. This order of entry into the equation is reported to have been "guided by SCCT which suggests that support variables may be more influential in the development of career behaviours than contextual barriers and person inputs such as SES," (Ali, McWhirter, & Chronister, 2005, p. 49). It is therefore a major limitation of the study that Ali et al. (2005) did not report results of a separate hierarchical regression analysis in which SES was entered first into the equation. It is entirely possible that this small methodological change would have resulted in the greater proportion of unique variance being attributed instead to SES. It is therefore conceivable that this may be a particularly acute case of these researchers seeing only what they were looking for.

It could also be argued that a further significant limitation of the study by Ali, McWhirter, and Chronister (2005) lies in the way in which SES itself was measured. Liu, Ali, Solek, Hopps, and Pickett, (2004) have criticised the Hollingshead (1975) instrument used to measure SES by Ali et al. (2005) on the grounds that it was inadequate for the task of capturing the multi-dimensional nature of SES. This criticism would seem to have some validity in that SES clearly extends beyond measures of parent's subjective self-report of their own educational and occupational status, as shown in the methodological analysis of the Scottish Index of Multiple Deprivation (SIMD) carried out earlier in this literature review. It was shown there that SIMD combines 38 indicators across seven domains namely: income; employment; health; education, skills and training; housing; geographic access and

crime. By comparison this clearly indicates that the single domain of parents' subjective self-report of their own educational and occupational status used by Ali et al. (2005) was an inadequate measure of SES.

In a second hierarchical regression analysis, Ali, McWhirter, and Chronister (2005) found that measured vocational/educational self-efficacy was an important predictor of Vocational Outcome Expectations, as measured by the Vocational Outcomes Expectations Scale devised by McWhirter, Crothers, and Rasheed, (2000). Students with higher vocational/educational self-efficacy were found to have significantly higher vocational outcome expectations. This finding therefore provided empirical support for Lent, Brown, and Hackett's (1994) SCCT hypothesis that task-specific self-efficacy will partly determine outcome expectations. Furthermore, this empirical support is provided in a domain which is arguably very similar to the domain of obtaining a positive postsecondary destination, and is therefore of particularly close relevance to the aims of this current study. This important finding will be analysed and evaluated in still greater detail later in the Career Outcome Expectations section of this literature review.

The second study which measured self-efficacy in a domain with particularly close applicability to the postsecondary transition was McWhirter, Crothers, and Rasheed (2000). The study entailed a within subjects experimental design with 166 high school students with a mean age of 15 years in a medium sized city in the Midwestern USA. A measure was specially designed for the study called the Vocational Skills Self-Efficacy Scale (VSSES). The development of this instrument was based on the vocational skills guidelines provided by the state in the USA in which the study took place. These guidelines specified the competencies students should possess upon graduating from high school. Once again the instrument complied with the good design guidelines subsequently articulated by Bandura (2006). The format of the instrument used the stem question "How much confidence do you have that you could:" followed by 37 items including the sample items, "Complete a job application correctly", "Describe the basic interpersonal skills required for most jobs", and "Describe your academic strengths". Responses were made on a 9-point confidence scale rather than the 0-100 scale. Therefore, again it is possible that this use of a truncated scale may have resulted in the loss of

discrimination and predictive power, as shown in principle by Pajares, Hartley, and Valiante (2001).

The study involved an intervention in the form of a career education class which entailed nine, fifty-five minute lessons delivered over a nine week period. The career education intervention covered a range of topics including; how to locate vocational information, exploring postsecondary options in education, training and employment, learning skills in writing a Curriculum Vitae (CV) and performing at interviews. Attendance at a parallel health education class was used as a control condition. The experiment was carried out over three separate nine-week teaching blocks. Two groups were therefore established; one group did the career class in the first block followed by the health education class in block 2, and the other group did the courses in the reverse order. All participants were surveyed at the beginning of block 1 (Time 1), the beginning of block 2 (Time 2) and at the end of block 2 (Time 3). Therefore, this experimental design provided a control for the intervention condition versus the health education class. This design also provided a control for learning effects extrinsic to the study between Times 1, 2 & 3, by having two distinct interventions conducted end-on, in time sequence. The results were as follows. A simple t-test at the beginning confirmed there was no significant difference in self-efficacy between the two experimental groups. Analysis of Variance (ANOVA) showed that the career education class resulted in a small but significant increase in measured vocational self-efficacy in both treatment groups compared to controls. Post course follow up at Time 3 of the group which had completed the career education course first at Time 2 also indicated that a significant improvement in measured vocational skills self-efficacy had been sustained at Time 3, indicating that the gains were durable within that time period.

It could be argued that this study had two important strengths in key aspects of its methodology and design. Firstly, in the fact that the same target behaviours from a state specified curriculum were precisely embedded in both the intervention activities and in the target behaviours as measured by the custom-made instrument that was designed specifically for the study. This ensured accurate domain-specificity for the context and close domain correspondence between the intervention activities, and the target behaviours for the self-efficacy measure.

Secondly, the experimental method with built in controls, allowed the researchers to make valid claims about the likely existence of causal links between the intervention and the measured changes in self-efficacy beliefs. It is interesting to note that the fundamental design structure used by McWhirter, Crothers, and Rasheed (2000) to some extent mirrors that used by Bandura (1977), described above, in which the construct of self-efficacy was first conceived. Both studies used an experimental design and placed self-efficacy in the role of dependent variable. Both studies placed learning experiences in the role of independent variable. In Bandura (1977) these learning experiences were constituted by the four generic sources of self-efficacy, which included: performance experience, vicarious experience, verbal persuasion and emotional arousal. In McWhirter et al. (2000) the learning experiences are represented by the nine-week career education course. It could therefore be contended that this experimental design format can be a particularly helpful format for the exposition and exploration of social cognitive theory. In both Bandura (1977) and McWhirter et al. (2000) the experimental manipulation of the independent learning variables allowed firm conclusions to be drawn about their causal effect on the dependent variable of self-efficacy.

Arguably this means that the study conducted by McWhirter, Crothers, and Rasheed (2000) provides a particularly instructive experimental model for the design of future studies on the relationship between interventions, a range of SCCT constructs, and career performance behaviours associated with attaining a positive postsecondary destination. Unlike many of the studies analysed in the course of this literature review, this model affords the potential for firm conclusions to be drawn about causal links between personal, environmental and behavioural variables.

However, it should be borne in mind that the target behaviour of precise relevance to the aims of this current study is the ability of young people to secure a positive postsecondary destination in education employment or training. Therefore, although both the VESES and the VSSES show a close association with this positive destination target behaviour, it could be argued that neither is a precise fit. Therefore it could be reasoned that both Ali, McWhirter, and Chronister (2005) and McWhirter, Crothers, and Rasheed (2000) are in fact measuring various intermediary

target behaviours, which are preparatory tasks, such as finding information about applying to colleges and universities, and describing the basic interpersonal skills required for most jobs: rather than the more important and challenging performance behaviour of actually entering a positive destination in employment, education or training.

In summary, the study by Ali, McWhirter, and Chronister (2005) has shown that the hypothesis made by Lent, Brown, and Hackett (1994) that task-specific self-efficacy will partly determine outcome expectations was confirmed within the specific domain of tasks pertaining to college attendance, vocational training, and obtaining a job after high school. Furthermore, the study by McWhirter, Crothers, and Rasheed (2000) has shown that career interventions intended to build skills with close relevance to the postsecondary transition can produce significant and sustained improvement in measured vocational skills self-efficacy beliefs. Therefore, it could be argued that these studies by Ali et al. (2005) and McWhirter et al. (2000) have demonstrated that a domain-specific construct of self-efficacy beliefs about attaining a positive postsecondary destination is potentially relevant to the development of a concept of preparedness for the postsecondary transition. Moreover, analysis of the measurement aspects of Ali et al. (2005) and McWhirter et al. (2000) has also provided some practical guidance about how an even more domain-specific construct of self-efficacy beliefs about achieving a positive postsecondary destination might be operationalised within in an inventory to assess the concept of preparedness for the postsecondary transition.

Sources of self-efficacy beliefs about a positive postsecondary destination

Two studies were identified which had particularly close relevance to the task of exploring the generic sources of positive postsecondary destination self-efficacy beliefs. The first study was Anderson and Betz (2001), which used a complex design involving simple correlations, multiple regressions, and ANOVA. This involved 250 student participants who were studying psychology at university level in the USA. The stated aim of the study was to investigate the relationships between the generic sources of self-efficacy, on the one hand, and two different measures of social self-efficacy, on the other hand. One of the measures of self-efficacy was a generic

measure of social self-efficacy and the other a measure of occupationally relevant social confidence. To achieve these aims the paper described the development of a new measure called the Sources of Social Self-Efficacy Scale, while the social self-efficacy constructs were measured using pre-existing instruments. As part of the demographic data collection participants were asked whether they had chosen a career or were unsure.

In order to develop the Sources of Social Self-Efficacy Scale, Anderson and Betz (2001) used a panel of academic colleagues and graduate students to generate items for each of the four generic sources of self-efficacy identified by Bandura (1977, 1986), including Past Performance, Vicarious Experience, Social Persuasion, and Emotional Arousal. These four categories of generic sources of self-efficacy were used to inform the assessment of participants "experience in receiving socially oriented efficacy information" (Anderson & Betz, 2001, p.101). For this purpose social self-efficacy was defined as "an individual's confidence in his/her ability to engage in the social interactional tasks necessary to initiate and maintain interpersonal relationships in social life and career activities" (Anderson & Betz, 2001, p.101). The instrument used items such as "I always feel I know what I am doing in social situations" (Past Performance), "Many adults I know have good social skills" (Vicarious Experience), "Older people have told me that I was skilled in social situations" (Social Persuasion), and "Social situations make me feel uneasy and confused" (Emotional Arousal). The negatively framed items were reversed in the scoring so that a greater score indicated greater perceptions of having been exposed to the positive pole of the construct, in the case of all four sources.

Responses were made on a 5-point confidence scale rather than the 0-100 scale. Once, again it is possible that this may have resulted in the loss of discrimination and predictive power as shown in principle by Pajares, Hartley, and Valiante (2001). Nevertheless, a Maximum Likelihood factor analysis with varimax rotation was used to develop and test the new measure. Kaiser's criterion, of extracting all factors with an Eigenvalue greater than one, indicated eight factors. However, a decision was made to carry out extraction based on a four-factor solution, on the grounds that this was more consistent with the theoretical basis for the scale. Anderson and Betz (2001) indicated that this procedure defined a clear factor for each of the four generic

sources. However, close objective scrutiny of the items and the loading pattern in the published paper clearly indicates that this claim may, in fact, only be justified for Emotional Arousal, Social Persuasion and Vicarious Learning. For each of these sources there was indeed a clear pattern of loading from the appropriate donor scales in the pre-empirical inventory. However, the claim made by Anderson and Betz (2001) was arguably unjustified in the case of Past Performance, which had only one item from the original Past Performance donor scale, and one from each of the Emotional Arousal and Social Persuasion donor scales.

The pre-existing measures of social self-efficacy used by Anderson and Betz (2001) included the six-item Social Self-Efficacy Subscale of the Self-Efficacy Scale (Sherer et al.,1982) and the Social Confidence Scale from the Skills Confidence Inventory, (Betz, Borgen, & Harmon, 1996). As discussed earlier in the literature review, both Bandura (2006) and Betz and Hackett (2006) have stressed that self-efficacy beliefs have greatest salience when measured in closely focused, domain-specific ways. Therefore, it could be argued that the first of these measures, the Social Self-Efficacy Subscale, is much too general to be closely relevant to the specific domain of career development. This was confirmed by detailed scrutiny of its component items, which related only to perceived ability to perform broad and general behaviours associated with meeting people and maintaining relationships. The second measure of self-efficacy, the Social Confidence Scale, was marginally more domain-specific in that it sought to measure social activities deemed to have particular occupational relevance to the psychology student participants' potential vocational domains, such as teaching, helping, and counselling. The Social Confidence Scale was also more compliant with the good measurement guidelines advocated by Bandura (2006) as outlined above, in that it presented self-efficacy items as task statements and then elicited responses from participants based on a scale which ranges from "Complete confidence" to "No confidence at all. However, it employed only a 5-point Likert scale, which was likely to have reduced its discrimination power, as shown in principle by Pajares, Hartley & Valiante (2001).

The results of Anderson and Betz (2001) showed that males reported significantly lower scores than females (*ps*<.001) on Past Performance, Vicarious Experience and Social Persuasion, although there was no difference on Emotional Arousal, as

measured by the Sources of Social Self-Efficacy Scale. Correlations between these learning sources and both the criterion self-efficacy measures including the Self-Efficacy Scale and the Social Confidence Scale were also all statistically significant. However, Past Performance, Emotional Arousal and Social Persuasion were all more strongly correlated with the criterion measures of self-efficacy than Vicarious Learning, for the full sample, which included both males and females.

A subsequent multiple regression analysis showed that, for the full sample, the Social Persuasion and Past Performance sources of self-efficacy were statistically significant predictors of scores on the more methodologically robust, and occupationally relevant, Social Confidence Scale. It was particularly pertinent to the aims of the current study that Past Performance and Social Persuasion sources were statistically significant predictors of scores on the Social Confidence Scale, for males. However, Emotional Arousal was the only source which proved to be a significant predictor measure of Social Confidence Scale scores among females. Vicarious Experience did not contribute to the prediction of the occupationally relevant Social Confidence Scale scores for either gender.

Analysis of variance (ANOVA) was also carried out on the scores on the Sources of Social Self-Efficacy Scale and the scores on the Social Confidence Scale, as a function of students' response to the question: "Have you selected a career?" Participants who answered "Yes" reported greater positive experience with past performance ($p<.001$), social persuasion ($p<.001$), vicarious experience ($p<.01$), and emotional arousal ($p<.001$), than those who answered "No" or "Not Sure". Participants who answered "Yes" compared to those who answered "No" or "Not Sure" also had higher scores on the domain general Social Self-Efficacy Subscale ($p<.05$) and also the marginally more domain-specific Social Confidence Scale ($p<.001$).

Despite the methodological caveats identified above, these results from Anderson and Betz (2001), based on correlational and multiple regression analysis, lend some support for the hypothesis made by Lent, Brown, and Hackett (1994), within the SCCT choice model, that greater experience of the generic sources of career self-efficacy beliefs will be associated with greater career self-efficacy beliefs. These

results also support the hypothesis made by Lent et al. (1994) that these relationships will also be affected by person factors: in this case by gender.

It may be argued that a particularly strong feature of the study by Anderson and Betz (2001) is that it employed a quasi-experimental design to show that, at the level of individual differences, those participants who reported that they had already selected a career also reported greater experience with all four generic sources of self-efficacy and greater social self-efficacy and social confidence beliefs. It is important to note that these ANOVA results, based on the quasi-experimental design, enabled the researchers to suggest with some credibility that interventions, chosen to provide learning experiences in respect of the four generic sources of self-efficacy, would seem to have considerable potential for enhancing outcomes in personal and career development. However, it is arguable that the other correlational evidence presented by the Anderson and Betz (2001) would not on its own allow such credible recommendations for intervention.

The quasi-experimental model used by Anderson and Betz (2001) may therefore demonstrate a particularly useful design for use in future studies. The quality of the evidence produced using this quasi-experimental model is perhaps not quite as strong as that of Bandura (1977) or McWhirter, Crothers, and Rasheed (2000), as analysed and evaluated above, which was produced by experimentally manipulating the independent variables to show causality of impact on self-efficacy beliefs measured as a dependent variable. However, it could be argued that the quasi-experimental model used by Anderson and Betz (2001) represented a very ingenious and practical compromise, in that it harnessed naturally occurring individual differences in measured career decidedness as the independent variable and measured their statistical relationship with self-efficacy beliefs as the dependant variable. Consequently, it is possible to argue that a quasi-experimental model such as this could be particularly practical and effective in the design of future studies. These future studies could seek to empirically test very specific hypotheses concerning the causal relationships between particular educational interventions, measured SCCT factors, and onward career performance behaviours, such as obtaining a positive postsecondary destination.

However, at a more detailed level of its execution in practice, it is possible to level a very major criticism at the study conducted by Anderson and Betz (2001), despite its use of a robust quasi-experimental design. This concerns the relationship between the scales chosen to measure social self-efficacy, and the key question of what were the differences between those who were able to decide on a career as opposed to those who were less certain. It could be argued that the social self-efficacy measures used in this study were placed in the position of being only substitutes for self-efficacy beliefs about the target behaviour of selecting a career. It is therefore perhaps a missed opportunity that Anderson and Betz (2001) did not try to measure the self-efficacy beliefs corresponding directly to the target behaviour in a more domain-specific way. This could have been achieved by measuring the participants' self-efficacy beliefs about their actual ability to select a career.

Clearly this would have required additional work in the design of custom-made instruments to measure domain-specific self-efficacy beliefs about selecting a career in a psychology-related area, as well as custom-made instruments to measure its putative domain-specific sources. However, this would have enabled Anderson and Betz (2001) to measure the direct sources of having the confidence to choose a psychology-related career. Ideally this could have been constructed with component items that reflected the fact that the self-efficacy beliefs associated with successfully entering a psychology-related career are likely to be more specific than simply having the necessary social skills, and then being able to make a career choice. Likewise the sources of these self-efficacy beliefs are likely to be much more domain-specific than the very general sources of social self-efficacy that their specially designed instrument, the Sources of Social Self-Efficacy Scale, actually set out to measure. It could be argued that more appropriate items should have been generated for more narrowly focused sources of self-efficacy scales that related to previous experience in receiving efficacy information, with closer domain-specific relevance to actually being successful in developing a positive career in psychology.

The second study identified in the literature with close relevance to assessment of the generic sources of self-efficacy beliefs about a positive postsecondary destination was carried out by Chin and Kameoka (2002). This study also attempted to measure the effect of social economic status (SES). The participants were 107 children, 97%

of whom were Mexican Americans living in an inner city environment in the USA. These children were aged 10-13 with a mean of 11.3, 78% of whom received free school meals. A Self-Efficacy Scale for Future Attainment was custom-made within the study to assess self-efficacy beliefs for postsecondary educational and occupational attainment. This study purported to operate within Bandura's social cognitive framework, and in doing so, research the impact of the sources of self-efficacy belief on educational and occupational self-efficacy. However, in actuality, the way in which these social cognitive constructs were put into use by Chin and Kameoka's (2002) study was fundamentally inconsistent with Bandura's generic social cognitive framework, in a number of important ways.

These inconsistencies with social cognitive theory can be illustrated by means of examples. The Self-Efficacy Scale for Future Attainment contained nine items which purported to measure postsecondary educational self-efficacy. An example item was "I will probably go to college". It also contained another nine items which purported to measure postsecondary occupational self-efficacy. An example item for this was "I will have the job I want". At a superficial level such items appear to have good content validity for the target constructs of achieving postsecondary educational and occupational success, respectively. However, strictly speaking, such items deviate significantly from the main tenets of social cognitive theory. For example, Bandura (2006) stressed that, within social cognitive theory, self-efficacy is concerned with perceived capability and so scale items should be phrased as *can do* rather that *will do* (Bandura, 2006, p.308). Furthermore, the response scale used for these items was a four point agreement scale, which ranged from "Not true at all" to "Very true". This is also inconsistent with social cognitive theory because self-efficacy beliefs should be measured in terms of degree of confidence the participant has to perform the target behaviour (Bandura, 2006). The measuring scale used was also considerably shorter than the 100-point scale format advocated by Bandura (2006), and which Pajares, Hartley, and Valiante (2001) have shown to yield significantly greater discriminatory power.

With regard to assessing Past Performance, Chin and Kameoka (2002) used participants' actual scores on school tests, and also a measure of the young people's participation in extracurricular activities. Evidently, neither of these measures is

consistent with social cognitive theory, as Bandura (1986) clearly defined Past Performance as interpretations individuals make of their experiences rather than an objective measure. A similar criticism may be applied to the way in which Chin and Kameoka (2002) measured Vicarious Experience, which entailed asking the participants to provide information about their parents' highest educational qualification. Bandura's (1986) description of Vicarious Experience made it clear that, with reference to generic social cognitive theory, it is what an individual makes of such information which is important rather than any objective measure. Unfortunately, the measure used by Chin and Kameoka (2002) failed completely to capture that. The way Social Persuasion was measured by Chin and Kameoka (2002) was also inconsistent with the social cognitive theoretical framework outlined in Bandura (1986), as it was put into operation using questions about what teachers, parents and peers *expect* of the participants, rather than the extent to which they had received persuasion from them. A further significant limitation was that Chin and Kameoka (2002) only measured three out of the four theoretical sources, as the study does not include a measure of Emotional Arousal.

Despite these fundamental limitations, the study does yield some results worthy of examination, although the confidence which can be placed on these findings is reduced for the reasons given. Using multiple regression analyses Chin and Kameoka (2002) showed that measures of perceived peer expectations and perceived parental expectations, although flawed measures of social persuasion for the reasons identified, were nevertheless significant predictors of occupational self-efficacy. However, perceived teacher expectations, using the theoretically inconsistent measure described, were not significant predictors of occupational self-efficacy. Vicarious Experience, using the theoretically inconsistent measure described, was found not to be a significant predictor of occupational self-efficacy. However, it is important to stress that a more methodologically appropriate and theoretically consistent operationalisation of Vicarious Experience, using a measure other than parental occupation, could possibly have revealed greater links between this source and postsecondary vocational self-efficacy beliefs.

The stated aim of Chin and Kameoka (2002) to research the links between occupational self-efficacy, and its sources, with social economic status (SES) was

particularly pertinent to the aims of the current study. However, SES was assessed within the study by asking participants about their perceptions about neighbourhood resources and safety. This measure was found not to predict the measured level of exposure to any of the sources. Neither did that particular measure of SES predict postsecondary educational nor occupation self-efficacy beliefs of the participants. However, it could be argued that, while asking participants about their perceptions about neighbourhood resources and safety might be a valid research question on its own merits, it is clearly a wholly inadequate measure of the explicitly intended construct of SES. It could also be argued that, due to the absence of any controls or differing levels of measured SES within the study design, it is not possible to draw any meaningful inferences about the impact of SES on the main measures of self-efficacy and its sources, even within this very limited measure of the construct of SES. Finally, it is also worthy of note with regard to the aims of the current study that Chin and Kameoka (2002) found that neither educational nor occupational self-efficacy was influenced by gender.

In summary, despite methodological limitations and inconsistency with social cognitive theory, the study by Anderson and Betz (2001) has shown that higher levels of social self-efficacy and also the putative sources of social self-efficacy are associated with greater career decidedness in high school students. This study also showed male high school students reported significantly lower exposure to the sources of social self-efficacy including past performance, vicarious experience and social persuasion. This pattern of scores therefore could potentially contribute to an explanation of why males are over represented in the group of young people who fail to secure a positive postsecondary destination. Furthermore, the study by Chin and Kameoka (2002) has shown that a measure of social persuasion, although methodologically and theoretically flawed, was a predictor of occupational self-efficacy. It could be argued, therefore, that taken together the studies by Anderson and Betz (2001) and Chin and Kameoka (2002) demonstrate that the sources of self-efficacy are potentially relevant to the development of a concept of preparedness for the postsecondary transition. In addition, the analysis of these studies has revealed some clear guidance on how to avoid some significant methodological limitations in the design and use of robust instruments to measure both social cognitive constructs and SES.

Career outcome expectations

Within Social Cognitive Career Theory (SCCT), Lent, Brown, and Hackett (1994) argue that when considering career choices individuals consider not only their confidence in their ability to perform certain career-related actions but also what the results of successful performance might be. They suggest that "costly life decisions would seem to mandate consideration of the response outcomes as well as personal capabilities. (Lent, Brown, & Hackett, 1994, p. 84). They also hypothesised that outcome expectations, like self-efficacy beliefs, are generated through direct and vicarious experiences with educational and vocationally-relevant activities (p.103). Ali, McWhirter, and Chronister (2005) point out that these career-related outcome expectations are much less researched than career self-efficacy beliefs. This may be an important deficit in the light of the possibility that outcome expectations "may have particular salience for individuals of lower SES who may have limited access to resources" (Ali et al., 2005, p. 44).

Two studies were identified in the literature which investigated the relevance of career outcome expectations in ways that were closely relevant to the aims of the current study in terms of domain-specificity, participants and other measured factors. The first study was Panagos and Dubois (1999), which involved 96 participants chosen from a larger pool of 169 high school students in a suburban high school in Midwestern USA. All the children in the larger pool from which the research sample was drawn were deemed as having a learning disability according to the Missouri Department of Education Criteria, which used a multidisciplinary team to make the determination. However, children with a Full Scale Intelligence Quotient (IQ) below 85 were excluded from the study sample on the rationale that "participants would be able to respond in a reliable manner" (Panagos & Dubois, 1999, p. 27). The research population was described as 76% White and 24% African American, which was achieved by excluding other race/ethnic groups to allow what Panagos and Dubois (1999) refer to as a binary comparison. However, it could be argued it is regrettable that a more inclusive research design and methodology was not devised in order to allow participation of the whole group regardless of measured IQ and race/ethnic group.

The participants were selected from grades 9-12, had an age range of 14-18, with mean age of 15.7, and were 25% female. Panagos and Dubois (1999) measured SES using a 9-point occupational factors scale devised by Hollingshead (1975). This was based on parental self-reports of their educational and occupational status. On the basis of this measure the participants were classified as having parents who were semi-skilled (15%), skilled (29%) or professional (56%). It would appear that, on the basis of this measure, the population was significantly skewed towards participants of high SES. The participants' occupational aptitude and interests were measured using The Career Ability Placement Survey and the California Occupational Preference Interest Inventory, which enabled the identification of the three occupational areas deemed appropriate for each participant. This was based on measured ability and also the students expressed preferences, from a total group of 14 occupational areas. Outcome expectations were then measured by asking each participant to rate his or her level of expected outcomes that were prefaced by the stem, "How much do you think this career will help you get….?" Each of the six types of outcome expectations identified by Bandura (1986) was added to this stem including monetary, freedom, friends, sense of accomplishment, security, and prestige. Each type of outcome expectation was therefore measured on a single item and rated on a 10-point scale ranging from 0 (none) to 9 (high). Career self-efficacy was measured for each of the participants' three identified career areas using an instrument developed specifically for the study. These were described in the study as single item rating scales using a 9-pont confidence scale.

The results showed that all six of the measured categories of career outcome expectations were significantly correlated with self-efficacy beliefs. These correlations ranged from r=.28 to r=.42, with significance levels from p<.05 to p<.001. Three categories of outcome expectations including sense of accomplishment, security and prestige were also significantly correlated with career interest scores with correlations ranging from r=.20 to r=.26 (p<.05). It is noteworthy that the outcome expectations which Bandura (1986) labelled as self-evaluative; that is sense of accomplishment, security and prestige; were the strongest in relation to both career self-efficacy and career interests. In a subsequent regression analyses Panagos and Dubois (1999) found that ratings of perceived career self-

efficacy and career outcome expectations together consistently accounted for a significant proportion of the variance in interest scores. On the other hand, outcome expectation ratings alone did not make a significant independent contribution to the variance. However, the fact that both self-efficacy beliefs and outcome expectations were measured using single items scales could be considered a significant methodological limitation. Consequently, it is possible that such instrumentation may not have been able to capture the full scope of the underlying cognitive components. No statistical effects were found for social economic status (SES).

However, again it is possible that methodological limitations may have contributed to this confirmation of the null hypothesis for SES effects. As has already been pointed out above, Liu, Ali, Solek, Hopps, and Pickett (2004) have criticised the Hollingshead (1975) instrument used to measure SES in the Panagos and Dubois (1999) study, on the grounds that children's self-report of their parent's educational and occupational status was inadequate for the task of capturing the multi-dimensional nature of SES. Nevertheless, even on the basis of this very limited measure, it is clear that the study sample was significantly skewed towards high SES, which would make any significant effects due to SES considerably more difficult to detect.

It is also significant with regard to the aims of the current study that no significant effects were found with respect to gender. However, again it is possible to criticise the study's sampling procedure, as the study population was heavily weighted towards males, which again is not an ideal design for revealing statistically significant gender effects. Nevertheless, it is a potentially significant finding, in relation to the aims of current study, that no statistically significant effects were found between either career self-efficacy or career outcome expectations in relation to ability as measured in Full Scale IQ scores.

The second study which investigated the relevance of career outcome expectations in ways that were closely relevant to the aims of this study in terms of domain-specificity, participants and other measured factors, was that conducted by Ali, McWhirter, and Chronister (2005). This study has already been partly analysed and evaluated above with regard to its positive finding that the Vocational Educational

Self-Efficacy Scale devised by Ali et al. (2005) was an effective predictor of career outcome expectations as measured in high school children with low SES. However, the instrument used to measure career outcome expectations by Ali et al. (2005) will now be examined in greater detail. The instrument used was the Vocational Outcome Expectation Scale devised by McWhirter, Crothers, and Rasheed (2000). This instrument was obtained in a complete form from one of the authors (personal communication, April 21, 2012).

Detailed inspection of the Vocational Outcome Expectation Scale instrument showed that it included items such as "My career planning will lead to a satisfying career for me." It could be argued that this item made a good contribution to the content validity of a measure of career outcome expectations. However, the measure also included the item, "The future looks bright for me" which does not appear to be such a good item to measure career outcome expectations, as it would appear to be a more appropriate item for a scale measuring dispositional optimism. It could also be contended that the item, "I have control over my career decisions" did not contribute well to the content validity of a scale which purports to measure career outcome expectations, but would have been better suited to a scale that sought to measure career locus of control, which is a different construct entirely. Therefore, this imposed a further significant limitation on the findings of the study as a whole. Given that it would appear that the Vocational Outcome Expectation Scale was not a well differentiated, one-dimensional measure of career outcome expectations; then perhaps it is appropriate to be cautious about drawing overly-firm conclusions based on correlation evidence with measures of other related constructs. It is entirely possible therefore that the identified correlations may in part be attributable to methodological confusion and conflation between measured constructs.

In summary, taking an overview of the study Panagos and Dubois (1999) and the study by Ali, McWhirter, and Chronister (2005) it could be inferred that together, despite their limitations, they provide some tentative, qualified evidence to support two of Lent, Brown, and Hackett's (1994) core hypotheses in SCCT. These tentatively confirmed hypotheses include that higher levels of career outcome expectations will be associated with higher levels of career self-efficacy beliefs, and that both of these cognitive constructs will also be associated with higher levels of

career interest scores. It is should also be noted also that these attempts to measure career outcome expectation, career self-efficacy, and career interest constructs were carried out, albeit with the methodological and design weaknesses highlighted, in the specific domain of the postsecondary transition and with high school student participants similar to those of direct relevance to the current study. Therefore, in summary, the evidence would indicate that a domain-specific construct of outcome expectations related to attaining a positive postsecondary destination is germane to the development of a concept of preparedness for the postsecondary transition.

Career goals and career performance attainments

Career goals and career performance attainments are important in the interest, choice and performance models within SCCT, as shown in Figures 5, 6 and 7 respectively. Lent, Brown, and Hackett (1994) postulated that goals operate by enabling people to symbolically represent desired future career outcomes and to use these as internalised standards to evaluate their own career performance and progress.

Goals are therefore held to be implicit in career choice and decision-making and take the form of aspirations, career plans, expressed choices and decisions (Lent, Brown, & Hackett, 1994).

Career performance attainment is operationally defined to include measures of persistence in career-related tasks and also measures of level of career accomplishment (Lent, Brown, & Hackett, 1994, p.98).

A study carried out by Rogers and Creed (2011) was identified as having particular salience to the aims of the current study with respect to career goals and career performance attainments. These workers sought to measure both career goals and career performance attainments with senior high school students, and relate them both to a measure of career self-efficacy, all with parallel domain-specificity to the postsecondary transition. Rogers and Creed (2011) used a design which combined cross sectional data collected from three different year levels: 10, 11 and 12 of secondary school students in Australia. This study also captured an important longitudinal aspect, in that it measured change in these measures over a six month

period. The research population was 819 students at Time 1 and 631 students at Time 2, although only the data relating to the 631 students who participated on both occasions was reported.

Career goals were measured by Rogers and Creed (2011) using the Career Goals Scale devised by Mu (1998). This comprised a six-item scale, with a 4-point response format with endpoints of *strongly agree* to *strongly disagree*. The Career Goals Scale was published in full in Creed, Patton, and Bartrum (2002), which allowed closer scrutiny of the six items. This revealed that it included the item, "I know what I want to do in terms of an occupation or career," which would appear to have good content validity for scale measuring career goals for high school students preparing for the postsecondary transition. However, it also included the item, "I am taking the steps necessary to achieve my occupational career goals", which would appear to be less appropriate for a scale measuring career goals, and more appropriate to the measurement of the different and distinct construct of career performance attainment. Furthermore, the item: "I believe I will be able to achieve my occupational career goals" would appear to be tapping into yet another distinct construct, which might be more accurately described as career attainment self-efficacy.

Therefore, although Rogers and Creed (2011) report Cronbach's alpha internal reliability coefficients of 0.86 at Time 1 and 0.89 at Time 2 six months later, it may be that the Career Goals Scale was not in fact a one-dimensional measure of Career Goals but a multidimensional measure of career goals, performance of career development tasks and career self-efficacy beliefs. It could be argued therefore, that this inadvertent multi-dimensionality may have imposed a significant limitation on the value of the measure as a whole. If the scale was not a well differentiated, one-dimensional measure of career goals, as it purported to be, then perhaps the evidence of correlation with other related constructs needs to be interpreted with some caution. This is particularly true because the constructs which appear to be conflated within the Career Goals Scale, that is career performance attainment and career-self-efficacy, are precisely those with which Rogers and Creed report significant correlations.

Rogers and Creed (2011) also measured two other constructs entitled Career Exploration and Career Planning which they defined as "career choice actions, or career behaviours….which are necessary for the young person to make progress towards identified career goals" (Rogers & Creed, 2011, p. 163) and later as "career preparation tasks" (p.164). The Career Exploration and Career Planning constructs, so defined, were each measured by Rogers and Creed (2011) using a different subscale from the Career Development Inventory devised by Lokan (1984). These were made up of 20 and 16 items respectively. These scales are presented in full in Patton, Creed, and Spooner-Lane (2005), which allowed detailed scrutiny of the component items. A sample item from the Career Planning Scale was "How much have you thought and planned about taking subjects that will help you on the job in future" which employed a five-point response scale, from *low* to *high*. A sample item from the Career Exploration Scale was, "Would you go to careers teachers, career advisors, or school counsellors for information to help in making your plans for work or further education", which used a 5-point agreement rating scale. Therefore, it could be argued that these items have good content validity for measures of the initial career performance attainment tasks of planning and exploration, facing young people going through the postsecondary transition.

The study by Rogers and Creed (2011) also measured career decision-making self-efficacy using the Career Decision-Making Self-Efficacy Scale devised by Betz, Klein, and Taylor (1996). This measure was developed for use with university students in the USA. It was designed to measure the self-efficacy beliefs that such students hold about their ability to make a good choice about which career to pursue after university. To do this the Career Decision-Making Self-Efficacy Scale posed the universal stem question of: "How much confidence do you have that you could….", then applied this to 25 different items. An example item was "……select one major from a list of potential majors you are considering". It could be argued, therefore, that such items are more important to comparatively socially advantaged university students facing these choices, but less appropriate to high school students for whom the target behaviour of greatest relevance is more concerned with attaining a first positive postsecondary destination in education, training or employment. The Career Decision-Making Self-Efficacy Scale used a 5-point confidence scale ranging from "No confidence at all" to complete confidence". The fact that it uses this

truncated scale rather than the 0-100 scale means that is likely to lose discrimination power (Pajares, Hartley, & Valiante, 2001). However, in other respects this format complies with the good practice guidelines provided by Bandura (2006).

Simple correlation analysis carried out by Rogers and Creed (2011) showed that career decision-making self-efficacy and career goals were significantly correlated (r=.49, p<.001). Multiple regression analyses conducted by Rogers and Creed (2011) showed two other important results. Firstly, career decision making self-efficacy and career goals both predicted career planning behaviour. Secondly, career decision-making self-efficacy was associated with career exploration. Furthermore, these significant results from multiple regression analysis were obtained not only in cross-section across the three year grades at Time1, but also longitudinally between Time 1 and Time 2. This provides particularly powerful internal corroboration of the significant effects.

It could be argued, therefore, that these results obtained by Rogers and Creed (2011) provided some limited evidential support for some of the core hypotheses made by Lent, Brown, and Hackett (1994) within SCCT: specifically that greater career self-efficacy will be associated with greater goal-setting behaviour, which in turn will be associated with performance attainment. Importantly, Rogers and Creed (2011) have done this in domain-specific ways that are close to the real world context of greatest relevance in this study: the postsecondary transition to further education and work. However, it could also be borne in mind that the analysis above makes clear that there were some significant methodological weaknesses in the instruments used by Rogers and Creed (2011) that prevented the full realisation of this aspiration. Furthermore, it is important to note that this evidence was purely correlational, therefore cannot support inferences of causality.

As has been pointed out in the analysis above, some of these pre-existing measures may not be uni-dimensional measures of the underlying construct which they purport to measure. In the case of the career goals measure this is of particular concern due to the fact that it contained two items which looked more like items which tap into performance and self-efficacy constructs respectively. Therefore, it could be argued that these limitations undermine the meaningfulness of the significant correlations

found with these other criterion constructs, which form the basis for some of the main findings of the study. It is possible that this apparent confusion over scale item choice is derived from a lack of precision in the way that Lent, Brown, and Hackett (1994) define goals and performance attainments in their original paper. A further potential limitation may derive from the fact that Rogers and Creed (2011) chose to use pre-existing measures of goals and performance attainment measures, which only provided a compromised fit between the domain-specificity of the measured goals and the measured performance behaviours.

In summary, despite the identified limitations relating to instrumentation and measurement, it could be argued that the study by Rogers and Creed (2011) has produced evidence that indicates that the domain-specific constructs of goals and performance attainments related to attaining a positive postsecondary destination are potentially salient to the development of a concept of preparedness for the postsecondary transition and the proposed assessment instrument. The study by Rogers and Creed (2011) was also relevant to the aims of the current study in one further important aspect, which was that it also considered the impact of gender. The study found no difference between males and females in terms of performance of the career planning and career exploration measures.

Contextual career supports and barriers

Lent, Brown, and Hackett (2000) argued that contextual supports and barriers could potentially be the most powerful predictors of career choice behaviour. They also noted that this was a relatively under-researched area of SCCT. However, three studies were found that have particularly close relevance to the aims of the current study.

The first of these studies was carried out by Turner and Lapan (2002). This involved 139 seventh and eighth grade students with an average age of 12.5 years, from two schools in Midwestern USA, described as having middle class catchment areas. Career self-efficacy beliefs and perceived parental support were measured using the Mapping Vocational Challenges instrument, which was developed by the authors. This measure presented 90 different occupations to the participants in sequence. As

each was presented, the participants were asked to rate their self-efficacy beliefs with regard to each, on a forced choice dichotomous scale in which 0 was "I do not have confidence I could do this type of job" and 1 was "I have confidence I could do this type of job." Participants were also asked to rate their perception of parental support on a forced choice dichotomous scale, where 0 was "My parents would not support me in pursuing this occupation" and 1 was "My parents would support me in pursuing this occupation."

It is possible that the dichotomous scales used in these measures may have resulted in substantial reduction in the resolution power to detect differences that may exist in the research populations. Nevertheless, the regression analyses of the scores showed that young people's perceptions of parental support accounted for 29% to 43% of total variance in vocational self-efficacy beliefs, depending on the type of career being considered. These findings therefore provided some support evidence, within the specific domain of the postsecondary transition, for Lent, Brown, & Hackett's (1994) hypothesis that perception of parental supports will be associated with greater career self-efficacy. However, it is important to note that this evidence was purely correlational, therefore cannot support inferences of causality.

The second study of relevance to contextual career barriers was carried out by Ali, McWhirter, and Chronister (2005). This study has already been partly analysed and evaluated in the relevant section above with regard to its findings in relation to associations between scores on the Vocational/Educational Self-Efficacy Scale, and Vocational Outcome Expectations Scale. It will be recalled that Ali et al. (2005) worked with ninth-grade high school students, 70% of whom were classified as being of lower SES. However, this study was of further interest because it also measured perception of educational barriers by using the Perceptions of Educational Barriers Scale designed by McWhirter, Crothers, and Rasheed (2000). Using this measure the participants were asked to rate twenty-eight potential barriers to achieving postsecondary education. These potential barriers were organised within broad categories that included financial, relational, ability, preparation/motivation, demographic and relocation/separation. The ratings were carried out both in terms of the perceived likelihood of encountering the potential barriers and perceived difficulty in overcoming them.

In the study by Ali, McWhirter, and Chronister (2005), perceived sibling support was measured by the Sibling Support Scale developed specifically for the study to assess student's perceptions of the extent to which they get support from their most influential sibling in terms of vocational activities, ideas and plans. This was a 17-item measure which used a 5-point Likert scale. A sample item was, "My sibling is supportive of my future career plans." Perceived peer backing was measured by Ali et al. (2005) by the Friend Support Scale developed specifically for the study to assess student's perceptions of the extent to which they get support from their closest friends in terms of vocational activities, ideas and plans. This was an 18-item measure, which used a 5-point Likert scale. A sample item was, "My friends are supportive of my future career plans." Perceptions of parent support were measured by Ali et al. (2005) using the Parent Support Scale designed by Farmer et al. (1981). This was a 26-item measure, which used a five-point Likert agreement scale. It includes items such as, "My Mother/Father doesn't care if I am successful in a career."

In the first of two regression analyses by Ali, McWhirter, and Chronister (2005), the scores on the Vocational/Educational Self-Efficacy Scale were used as the criterion variable. Mother, father, sibling and peer supports were entered first into the regression equation, likelihood of encountering and difficulty of overcoming barriers were entered second into the regression equation, and social economic status (SES) was entered last. The regression equation accounted for 43% of the variance associated with vocational/educational self-efficacy. However, sibling and peer support were the only significant support predictors of vocational/educational self-efficacy, accounting for 36% of the variance. This showed that high peer and sibling support was associated with high vocational educational self-efficacy. Ali et al. (2005) reported that mother and father supports were not found to make a unique contribution to the variance and so were not individually significant predictors of vocational / educational self-efficacy. Similarly, the likelihood of encountering, and difficulty of overcoming, barriers were not individually significant predictors of vocational self-efficacy. As already noted above in the career self-efficacy section of this literature review, SES did not account for any unique variance in vocational/educational self-efficacy, although as discussed, this may be due to

limitations of measurement and arbitrary decisions about order of entry to the regression equation.

In the second hierarchical regression analysis carried out by Ali, McWhirter, and Chronister (2005), vocational outcome expectations was used as the criterion variable. Scores on the Vocational/Educational Self-Efficacy Scale were entered first into the regression equation. Mother, father, sibling and peer supports were entered second. Likelihood of encountering and difficulty of overcoming barriers were entered third, and social economic status was (SES) entered fourth. It has already been noted that this study showed that vocational/educational self-efficacy significantly predicted vocational outcome expectations. This meant that higher vocational/educational self-efficacy predicted higher vocational outcome expectations, accounting for 21% of the variance. However, it is also important to note that sibling and peer support variables accounted for further unique variance bringing the combined variance up to 34%. Ali et al (2005) reported that supports from mother and father were not found to make a unique contribution to the variance and so were not individually significant predictors of vocational outcome expectations. Similarly, no further significant variance in vocational outcome expectations was predicted by likelihood of encountering or difficulty of overcoming barriers, or SES.

These additional findings by Ali, McWhirter, and Chronister (2005), may be of critical importance to the aims of this current study, in that they show that, for young people from lower SES backgrounds, perceptions of sibling and peer support are more important in predicting vocational/educational self-efficacy and vocational outcome expectations, than perceptions of parental supports. These findings of Ali, McWhirter et al. (2005), despite the identified limitations, are also supportive of some of the key hypotheses of SCCT, as formulated by Lent, Brown, and Hackett (1994, 2000): specifically that career support from siblings and peers is associated with career self-efficacy and career outcome expectations. Although it should be recognised that this is based on correlational evidence from which no inferences about causality can be made. These findings of Ali et al. (2005) also serve to provide some valuable triangulation evidence for earlier findings by Harris (1995, 1998) that group socialisation processes in childhood peer groups may be even more important

than parent socialisation processes in forming and modifying enduring personality characteristics. This specific finding is also consistent with that of Bandura (1992) who found that vicarious learning experiences are more powerful sources of self-efficacy information when the model is perceived as similar to the target individual.

In the third study of relevance to the SCCT constructs of career supports and barriers, McWhirter, Torres, Salgado, and Valdez (2007) examined how such contextual factors operate and are perceived. Because of the close relevance of its aims to those of the current study, and the particularly instructive nature of some aspects of its design, it will now be analysed and critiqued in some detail. McWhirter et al. (2007) worked with 336 high school students from two schools in the USA. Of these, 140 were described as Mexican American and 296 were described as White. A background questionnaire was used to gather information on age, SES, gender, and race/ethnicity. SES was measured by asking the participants to indicate the highest education level obtained by parents from an eight item list. The students' immediate postsecondary plans were measured using an instrument designed specifically for the study, in which participants responded to the question, "What are your plans after high school" by indicating all those that applied in a list of alternatives. On the basis of this instrument, participants were assigned to one of four postsecondary plan groups including: no further education, specialised training, 2-year college degree, and four year degree.

Perceptions of 28 potential educational barriers were measured with a Perception of Educational Barriers Scale instrument designed by McWhirter, Crothers, and Rasheed, (2000), in which participants were asked to rate 28 potential barriers to achieving postsecondary education in terms of perceived likelihood of encountering them, and difficulty in overcoming them. The results of this instrument were subject to a principal components analysis using varimax rotation. This produced six *likelihood* components including financial, relational, ability, preparation/motivation, demographic and relocation/separation, and five *difficulty* components, including financial, lack of social support, demographic, ability/motivation and relocation/separation. The descriptive results showed there was a significant difference between the postsecondary educational plans of children categorised as being of low SES compared to those of high SES, as measured by parent education.

Participants with higher mean parental education were more likely to plan to complete a 4-year college degree and those with lower mean parental education were more likely plan to complete a 2-year college degree, $\chi^2(2, 391)=16.1$, $p<.001$.

Subsequently, two Multiple Analyses of Variances (MANOVAs) were carried out by McWhirter, Torres, Salgado, and Valdez (2007). In the first MANOVA, the six likelihood components served as dependent variables; with educational plans (three levels), ethnicity (two levels), parent education (two levels) and gender (two levels), serving as independent variables. In the second MANOVA the five difficulty components served as dependent variables, with the independent variables the same as for the likelihood component. The results showed no difference in postsecondary plans with regard to gender. The results showed no difference in the perceptions of likelihood or difficulty of barriers in relation to the reported postsecondary plans. Furthermore, educational plans did not differ with gender or race/ethnicity. No gender difference was found in the perceptions of any of the barriers associated with ability, preparation/motivation, or separation from family.

However, males showed anticipation of significantly fewer barriers associated with financing postsecondary education than females ($p<.005$). Also Mexican American participants showed a significantly greater anticipation of encountering barriers in terms of ability ($p<.004$), preparation/motivation ($p<.001$), and separation ($p<.001$), and expected those barriers to be more difficult to overcome than White participants ($p<.001$). No difference was found in the perceptions of likelihood or difficulty of barriers in relation to SES as measured by parent educational level.

It could be argued that this study by McWhirter, Torres, Salgado, and Valdez (2007) provided a further example of the methodological strength conferred by a quasi-experimental design. This gave the study the ability to generate evidence about potential causality between individual differences in independent variables such as SES, gender, postsecondary educational and race/ethnicity on the one hand, and the dependent variables of likelihood and difficulty of barriers, on the other hand. It is arguable however that, as in the study by Ali, McWhirter, and Chronister (2005) analysed and evaluated above, the use of self-reports of parental education as a

single dimensional measure of SES has significantly diminished the potential of the study to detect and characterise the existence of such causal relationships with regard to SES.

On a more subtle point, it could also be a significant weakness that, although the study plan included a response category of no further education plans in the measure of immediate postsecondary plans, this category was not included in the subsequent statistical analysis. It is not clear if this omission is as a result of no respondents using this category or if it occurred for other reasons. In either case, this limitation is particularly unfortunate from the perspective of the current study, as participants making this response would be likely to be at greater risk of not obtaining a postsecondary destination, and therefore of particular interest in terms of their responses on the dependent variable of perceptions likelihood and difficulty of barriers.

In summary, this section of the literature review on contextual career supports and barriers shows once again that correlational methods including regression analysis have been partially effective in building up evidence for the likely associations between SCCT variables hypothesised by Lent, Brown, and Hackett (1994). Turner and Lapan (2002) have used such methods to show that perception of parental support for career choices was associated with greater self-efficacy beliefs in particular career choices. Although Ali, McWhirter and Chronister (2005) found that sibling and peer support was more important than parental support in predicting vocational self-efficacy. Ali et al. (2005) also found that perceptions of career supports were more important predictors of vocational / educational self-efficacy than perception of career barriers. SES was found not to significantly affect educational / vocational self-efficacy beliefs although this could be due to methodological choices and inadequacies with the measure used for SES.

However, the analysis of the strengths and weaknesses of the study by Ali, McWhirter, and Chronister (2005) has thrown into particularly sharp relief that such correlational methods have fundamental weaknesses when it comes to the task of inferring causal relationships due to individual differences in SCCT variables such as SES, gender and contextual factors. It could be argued that for this purpose, the

quasi-experimental design used by McWhirter, Torres, Salgado, and Valdez (2007) may be more effective. These workers found that higher SES was associated with plans to pursue higher education. Males compared to females were found to anticipate significantly fewer barriers associated with financing career plans, although no difference was found in postsecondary planning in general with regard to gender. However, it could be argued, that these attempts to infer causal relationships between individual differences in SES and other SCCT variables, even within this quasi-experimental design used by McWhirter et al. (2007), may have been hampered by the use of inappropriate and inadequate measures of SES.

Despite these limitations, the evidence from the studies analysed clearly indicates that the domain-specific constructs of contextual supports and barriers related to attaining a positive postsecondary destination, have considerable potential to contribute to the development of a concept of preparedness for the postsecondary transition and its assessment, particularly with regard to SES and gender.

Career Optimism and Pessimism

Bandura (1977, 1989) argued that human attainment requires an optimistic cognitive style, which enables recovery of self-efficacy in the face of difficulties and setbacks. Kavanagh and Bower (1985) showed that when mood states were manipulated experimentally they could influence self-efficacy estimates, with positive mood states being associated with higher self-efficacy estimates. Lent, Brown, and Hackett (1994) also speculated that a tendency to experience negative or positive affect might influence the way in which an individual processed efficacy-relevant information. It is possible, therefore, that individuals who are disposed to high levels of negative affect might tend to discount their success experiences and so may be unable to capitalise on what could otherwise be an efficacy-raising experience. By the same token it is possible that individual differences in dispositional affect may also influence perceptions of environmental conditions. For example, if an individual experiences high levels of negative affect in general, all other things being equal, that person may also be likely to perceive more barriers and fewer supports. Dispositional affect may also influence a person's evaluation of their coping efficacy, for example high levels of negative affect may reduce an individual's

perceptions of their ability to cope with a particular barrier (Lent, Brown, & Hackett, 2000).

Within Control Theory, optimism was conceived of as a bi-polar construct with optimism at one pole and pessimism at the other (Scheier, Carver & Bridges, 1994, Scheier & Carver, 1993). It has been defined as "an individual difference variable that reflects the extent to which people hold generalised favourable expectancies for their future", (Carver, Scheier & Sergerstrom, 2010, p.1). It was commonly measured using the Life Orientation Test (LOT) and its successor, the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994), which was a twelve item assessment that uses a 5-point Likert scale. It included items such as "I'm always optimistic about my future," and "I rarely count on good things happening to me", with the latter being reversed in scoring. In a remarkable longitudinal study, Heinonen et al. (2006) showed that a significant positive association existed between parental indicators of SES when children were 3 or 6 years of age and adult optimism measured 21 years later when the children were 24 and 27 years old. The measure of SES employed in this study was an aggregate of education level, occupational class, and employment status. Intriguingly, these results clearly indicate the possibility of intergenerational effects in dispositional optimism, which are somehow associated with SES.

Three studies were identified that attempted to incorporate the construct of optimism/pessimism into SCCT. These included Creed, Patton, and Bartrum (2002), Patton, Bartrum and Creed (2004) and Creed, Patton, and Bartrum (2004). The data reported in all three of these studies were subsets of a single data set from a larger study investigating career maturity and career decision-making. This larger study involved 1,971 secondary school students enrolled in grades 8-10 in three secondary schools in South Eastern Australia, reported in Patton and Creed, (2001).

Creed, Patton, and Bartrum (2002) used exploratory and confirmatory factor analysis with 504 Australian high school student participants to demonstrate that the Life Orientation Test-Revised (LOT-R), devised by Scheier, Carver, and Bridges (1994), was in fact bi-dimensional rather than uni-dimensional. This showed that the test had two distinct factors, one for optimism and one for pessimism, which were largely

unrelated. Items such as “Overall I expect more good things to happen to me than bad,” showed high loadings on the optimism factor and items such as “I rarely count on good things happening to me,” showed high loadings on a separate and distinct pessimism factor.

Creed, Patton, and Bartrum (2004) used data for 130 high school students with ages ranging from 17.2 to 19.0, with a mean age of 18.1 years, from a single suburban high school in Australia. The social economic status (SES) of the participants was assessed using participants’ reports of their parents’ education. On that basis participants were then allocated into one of three levels of SES. Participants with parents who had up to 10 years of secondary education made up 56% of the school population. Those with parents who had completed 12 years of secondary education, and those with higher education qualifications made up 30% and 15% respectively. However, as noted above, measures of SES which only take account of children’s self-reports of the educational status of their parents may not be an adequate measure of this multi-dimensional construct. Creed, Patton, and Bartrum (2004) used path analysis to test two different path models to investigate the relationships between perception of barriers, optimism/pessimism, and career decision-making self-efficacy. Perception of career barriers was measured by a modified version of the Perceived Barriers Scale devised by Howell, Frese, and Sollie (1977). This comprised an 8-item scale. Each item had the stem of “How much effect do you think each of the following things will have in keeping you from getting the job you desire” which was applied to parental interests, current school, finances, mobility, job and training availability, and availability of career advice. Responses were recorded on a 4-point scale ranging from “no effect” to “very much effect”. Optimism and pessimism were measured using the Life Orientation Test – Revised (LOT-R; Scheier, Carver, & Bridges, 1994), described above. Career decision-making self-efficacy was measured with the Career Decision-Making Self-Efficacy Scale devised by Betz, Klein & Taylor, 1996), which was analysed and evaluated in the career self-efficacy section above.

The results showed some findings that are highly pertinent to the aims of the current study. Creed, Patton, and Bartrum (2004) found that there was no difference in the measured levels of optimism or pessimism between males and females. However,

being more pessimistic was associated with greater perception of environmental barriers, for females but not for males. Also being more optimistic was associated with more career decision-making self-efficacy, for males but not for females. Creed, Patton, and Bartrum (2004) found no significant differences between the responses of children in the different levels of measured SES, although this may be due to limitations of the measure used for SES.

Patton, Bartrum, and Creed (2004) used data for 467 high school students in one Australian high school, which is described as having a middle level socioeconomic catchment area. The participant population was described as 51.8% female, ranging from 12.5-18.5 years, and was reported as being without significant ethnic groupings. In this study these workers did not include data on the pessimism items from the LOT-R, but used only the results from the optimism items. This study used path analyses to contend that; for males, optimism influenced career outcome expectations, which sequentially predicted career goals, career planning and career exploration. A different pathway was identified for females in which optimism directly influenced both career planning and exploration.

This analysis of Creed, Patton, and Bartrum (2004) and Patton, Bartrum, and Creed (2004) highlights the fact that the same data set can be used to support different, and to some extent competing, path analyses. This analysis also supports the view that although a path model can be shown to provide a good statistical fit does not mean that it is the only or even the best fit. Therefore, as any one path analysis can only present one possible model, it may be appropriate to be cautious about the amount of certainty with which the complex results from these studies should be viewed. Arguably therefore the most, and perhaps the only truly, robust findings from these studies, in terms of relevance to the current study, are those based on the simple bivariate correlations which underpin them. Therefore, it is considered prudent in the context of the aims of this literature review to adopt a conservative position and concentrate on the bivariate correlations which are arguably less speculative and more fundamental.

The bivariate correlation results from Creed, Patton, and Bartrum (2004) show that pessimism was significantly correlated with greater perception of barriers (r=.24,

$p<.05$) for females but not for males ($r = -.16$, $p>.05$), but that optimism was not significantly correlated with barriers in either males or females. Similarly the bivariate correlation results from Creed, Patton, and Bartrum (2004) show that optimism was significantly correlated with greater career decision-making self-efficacy ($r=.44$, $p<.01$) for males but not for females ($r = -.16$, $p>.05$). It could be argued therefore that, in essence, the most important and robust findings of particular significance to the current study are twofold. Firstly, that being more optimistic was associated with more career decision-making self-efficacy, for males but not for females. Secondly, that being more pessimistic was associated with greater perceptions of career barriers, for females but not for males. Therefore, in summary, these studies indicate that the domain-specific constructs of optimism and pessimism related to attaining a positive postsecondary destination, are of considerable potential importance to the development of a concept of preparedness for the postsecondary transition and the proposed assessment instrument, particularly with regard to SES and gender.

Career Attributions

Attribution theory was built on the work of Rotter (1966) on the classical psychological construct of locus of control. This seminal study involved the design of a scale to assess individual differences in beliefs about internal versus external control of events. The scale entailed 29 forced choice items such as, "I have often found that what is going to happen will happen" versus, "Trusting to fate has never turned out as well for me as making a decision to take a definite course of action." Rotter used a series of experiments conducted with university student participants in the USA. These showed that individuals who were assessed to have strong beliefs that they could control their destiny were likely to be more alert to aspects of the environment which provided useful information for their future behaviour and so take steps to improve their environmental conditions. Such individuals also placed greater emphasis on personal skills.

Weiner (1979, 1985, 2010) elaborated on this work to propose a three dimensional taxonomy of attributions for success and failure in human endeavours. The first dimension was locus of causality, which defined the attribution of origination as

either internal or external to the individual. Ability and effort were given as examples of attributions with an internal locus, whereas task difficulty and luck were cited as attributions with an external locus. The second dimension was stability, which related to how a cause may be constant or varying over time. Ability and aptitude were given as examples of potentially stable causes, whereas effort and mood were more likely to be changeable. The third dimension was controllability, which referred to the extent to which a cause was perceived to be under an individual's control, such as effort, or not, such as luck. The model received considerable subsequent empirical support from studies based on manipulation of experimental priming conditions (Weiner, 2010).

Albert and Luzo (1999) argued that SCCT had not taken sufficient account of the role of career related attributions and general attribution style, and contended that this limitation was particularly noticeable with regard to the perceived barriers in SCCT. They outlined the potential salience of attributions by arguing that if an individual attributed the causes of a career barrier to external, stable, and uncontrollable causes such as luck, then that individual was less likely to expend energy and time trying to overcome the barrier. Alternatively, if an individual attributed career barriers to internal, unstable, and controllable causes then they were more likely to expend energy and time trying to overcome the barrier.

These theoretical contentions were empirically tested by Millar and Shevlin (2007), who developed the 20-item, multi-dimensional, domain-specific Career Locus of Control Scale. This was designed for use with high school students who were preparing to make the postsecondary transition, which makes the study particularly relevant to the current study. The participants were 743 high school students drawn from eight secondary schools in the North West of Ireland, who were aged 15-16. Millar and Shevlin (2007) assembled a 47-item, pre-empirical inventory and then carried out a maximum likelihood factor analysis on the participant's scores. This resulted in the identification of four subscales which were labelled Internality, Luck, Helplessness and Powerful Others. These scales were found to have Cronbach's alpha internal consistency coefficients of 0.76, 0.82, 0.75 and 0.72 respectively. The Internality subscale was found to be positively and significantly correlated with a measure of goal selection (r=.21, p<.001). In contrast, Luck (r=-.13, p<.001),

Helplessness (r=-.19, p < .001) and Powerful Others (r = .16, p <.001) were all found to be significantly negatively correlated with Goal Selection.

In another closely relevant study, Migunde, Othuon, and Mbagay (2015) worked with 359 high school students in Kenya. The participants were drawn from secondary years 1 to 4, had an average age of 16.5 years, and were 162 male and 197 female. Career indecision was measured with the 19-item Career Decision Scale devised by Osipow, Carney, Winer, Yanic, and Koschier (1976), which used a 4-point Likert scale. A Cronbach's alpha coefficient of internal consistency of 0.74 was reported for the research population. Career locus of control was measured using the Career Locus of Control Scale, devised by Millar and Shevlin (2007) as described above. A Cronbach's alpha coefficient of internal consistency of 0.77 was reported for this measure with the research population. The results were analysed using bivariate correlation analyses to show that for both males and females, career indecision was significantly positively associated with an externally attributed locus of control. Importantly, from the perspective of the aims of this study, no significant difference was found between the scores of males and females.

In summary, it may be argued that the contention made by Albert and Luzo (1999), that SCCT as originally postulated by Lent, Brown, and Hackett (1994) had not taken sufficient account of the role of career related attributions with regard to the perceived barriers in SCCT, is supported by the more recent studies analysed and evaluated. Millar and Shevlin (2007) showed that goal selection was positively associated with a factor representing an internal career locus of control and negatively associated with three different external career loci of control factors in high school students. Migunde, Othuon, and Mbagay (2015) showed that career indecision was associated with an external locus of control in high school students. Therefore, the analysis and evaluation of these studies indicates that a domain-specific construct of attributions related to attaining a positive postsecondary destination has considerable potential bearing on the development of a concept of preparedness for the postsecondary transition and its assessment.

Implicit self-theories about the changeability of career ability

The origin of the construct of implicit self-theories sometimes referred to as *mindset*, can be traced back to Kelly (1955). He argued that personally constructed belief and meaning systems are critical for the understanding of any individual's behaviour. An implicit self-theory perspective contends that beliefs that an individual may hold about the changeable versus fixed nature of human attributes, will influence that person's behaviour (Dweck & Leggett, 1988). This line of research has indicated that implicit belief systems can be categorised as two implicit self-theory types. These are known as incremental and entity self-theories. Individuals who identify themselves with an incremental theory believe that characteristics such as ability or personality are changeable through effort. Individuals who identify themselves with an entity theory believe that such characteristics are fixed and therefore cannot be improved by effort (Dweck & Leggett, 1988). Incremental theory and entity theory are sometimes referred to informally as *growth* and *fixed* mindset respectively.

A range of studies with diverse populations have shown that entity and incremental theories tend to be held in equal proportions in populations, and that people can hold different theories in different domains of performance (Dweck, Chiu, & Hong, 1995). However, it has been shown that entity and incremental theories can also be evidenced at a chronic, dispositional level in individuals (Molden & Dweck, 2006; Dweck, 2008). Nevertheless, it is clear that they can also show fluctuations over relatively short time periods. Indeed, much of the original empirical work on which the implicit self-theory model was based, employed short term manipulation through differential priming of each of the two implicit self-theory perspectives experimentally in laboratory settings. By these means it was possible to show the causal role such implicit self-theories have in creating meaning (Bempechat, London, & Dweck, 1991; Chiu, Hong & Dweck, 1997). There is a particularly strong evidence base in the form of priming expectations with children in experimental conditions in laboratory contexts, which have clearly shown causal links between primed implicit self-theories and the types of goals adopted. For example, Bempechat et al. (1991) manipulated children's implicit self-theories experimentally and found that children in the incremental condition showed significantly greater selection of learning goals after experiencing failure. In contrast,

children in the entity condition showed significantly greater performance goals after experiencing failure.

In later work, Hong, Chiu, Dweck, Lin, and Wan (1999) showed that individuals who were experimentally primed for an incremental orientation showed a significantly greater tendency to make effort attributions, display mastery-oriented learning responses, and take remedial action in the face of setbacks. Elliott and Dweck (1988) experimentally manipulated goal orientation in the laboratory to show that participants in the learning goal condition were significantly more likely to choose mastery-oriented learning responses. In contrast, those participants who had been primed for the performance goal condition were significantly more likely to show a helpless-oriented learning response. Perhaps the most significant finding from this body of work is that this phenomenon seems to operate independently of actual ability. Barone, Maddux, and Snyder (1997) argued that implicit self-theories of ability and personality can "become self-fulfilling prophesies by influencing psychological functioning to create futures that verify their predictions" (p.257).

Robins and Pals (2002) tested these implicit self-theories in a real world context with very close and direct relevance to the aims of the current study. The participants included 508 newly enrolled university students, who had recently left high school. The participants were described as being of diverse ethnicity and social economic status (SES), and 56% female. The purpose of the study was to examine the longitudinal changes in implicit self-theories from the point of transition from school to university and then throughout the university years including years 2, 3 and 4. These workers aimed to test implicit self-theory positions as one component in a wider array of variables, which were hypothesised to work together in a motivational system. Therefore, the set of measured variables by Robins and Pals (2002) included implicit self-theory, goal orientation, causal attributions for achievement, making helpless versus mastery responses, and changes in self-esteem. They used path analysis to test a hypothesised model, the evidence for which was based on the pattern of inter-correlations among the variables. The variables were measured with a range of self-report measures.

Implicit self-theories were measured using a 5-item Entity Orientation Scale, developed by Erdley and Dweck (1993), in which implicit-self theory was conceptualised as a bipolar construct with entity theory at one end and incremental theory at the other. This measure framed all five items as statements designed to capture the entity theory pole of the construct. An exemplar item was, "My ability is something about me that I can't change very much." Erdley and Dweck (1993) justify this unusual single pole approach to scale building on the grounds that empirical testing had shown that this approach conferred better reliability and validity characteristics on the measure.

Two types of Goal Orientation were measured by items custom-designed for the Robins and Pals (2002) study. Performance Goal Orientation was measured with five custom designed items. An exemplar item was, "Exams are stressful because I may not achieve the grades that I want". Learning Goal Orientation was assessed using a separate single item which was, "The knowledge I gain in school is more important than the grades."

Causal Attributions for Academic Achievement was measured in two ways. Firstly, this was carried out using the Multidimensional Multiattributional Scale devised by Lefcourt, von Baeyer, Ware, and Cox (1979), which measured two internal factors including ability and effort and two external factors including situation and luck. This measure comprised items such as, "Poor grades inform me that I have not worked hard enough." Secondly, Causal Attributions for Academic Achievement was assessed using a measure designed specifically for the study, in which participants were asked to make causal attributions by rating on a five-point scale how important each of a range of possible factors were in determining their grades. These factors included ability, effort, study skills, luck, the ability of other students, and perceived difficulty of the classes.

The helpless oriented behavioural response was assessed with a four item scale. A sample item was "When I fail to understand something, I become discouraged to the point of wanting to give up." (Robins & Pals, 2002, p.321). The mastery behavioural response was also assessed with a four item scale. A sample item was "When something I am studying is difficult, I try harder." (Robins & Pals, 2002, p.321).

Self-esteem was measured using a generic domain general instrument devised by Rosenberg (1965), which included items such as “I feel I am a person of worth, at least on an equal plane with others”. The whole group of measures were administered at the point of transition to university and then on a longitudinal basis at year 2, 3, and 4.

The results obtained by Robins and Pals (2002) showed no significant tendency for either increase or decrease in implicit self-theory positions of participants over time, as measured by the Entity Orientation Scale. No difference was found in any of the measures of implicit theories with regard to gender. However, the results did show statistically significant correlations as follows. Endorsing an entity theory, was significantly positively correlated with adoption of performance goals (r=.31, p<.05). Endorsing an entity theory was significantly positively correlated with a helpless response pattern (r =.48, p<.05), and significantly negatively correlated with a mastery response pattern (r =-.39, p<.05). Entity theorists had lower self-esteem than incremental theorists across the four year period (r = -.29, p < .05). The participants who endorsed an entity theory also showed a statistically significant decline through the university years in the measure of domain general self-esteem compared to incremental theorists (r = -.22, p< .05). From this correlational evidence Robins and Pals (2002) constructed a path model in which a train of influence was hypothesised to exist from holding an entity theory to the establishment of performance goals and helpless attributions, which then in turn resulted in a reduction in self-esteem, mediated through negative affect and helpless behavioural responses. It should be noted however that the last two of the correlations cited above are quite small and the fact that they were statistically significant is likely to be a function of large sample size. Therefore, the meaningfulness of these correlations in practical terms may be limited, as such small correlations can only account for a limited portion of the total variance.

Three other important caveats must also be acknowledged. Firstly, the participants in the Robins and Pals (2002) study were all on a postsecondary trajectory to university and by definition were therefore only a subset of the whole high school population. Secondly, the direct evidence on which the Robins and Pals (2002) study relies is

purely correlational from which no direct inference of causality can be made. Therefore, the sequential chain of influences hypothesised in the path model that Robins and Pals (2002) present is only one possible model, and may not be the only possible fit for the data, or indeed even the best fit. Thirdly, Robins and Pals (2002) used a generic measure of domain-general self-esteem as the key outcome variable. From the perspective of the aims of the current study it would have been more helpful had these workers measured more parallel, domain-specific, career-relevant, outcome variables. Ideally, these outcome variables would relate to the ability to perform concrete behavioural tasks associated with the attainment of onward destinations in employment, education and training.

In summary, despite the limitations, it could be argued that the analysis above indicates that differences in implicit beliefs or mindset about ability can potentially affect the way individuals approach achievement circumstances in the period immediately after leaving school. It has been shown that individuals who operated an incremental or growth mindset were more likely to set learning goals and to construe postsecondary challenges as inspiring them towards greater effort. In contrast, individuals who operated an entity theory or fixed mindset were more likely to set performance goals and to see such challenges as insurmountable, give up, and hence be vulnerable to failure. Therefore, this evidence suggests that it may be unfortunate that implicit self-theories found no explicit place in Social Cognitive Career Theory (SCCT) as originally formulated by Lent, Brown, and Hackett (1994). However, the evidence analysed above indicates that a more domain-specific interpretation of implicit self-theories related to attaining a positive postsecondary destination has potential bearing on the development of a concept of preparedness for the postsecondary transition and its assessment.

Attachment patterns and career development

Bowlby (1988) provided seminal insights from his work as a psychiatrist in clinical practice, that children develop attachments to primary caregivers which give rise to internal working models of the self and the self in relation to others, which they then use to interpret subsequent relationship experiences. Bowlby (1973) argued that a child with secure attachments to principal caregivers possessed an unconscious belief

that it was possible to have supportive contact with trustworthy, helpful others; and viewed themselves as being worthy of such contact. He reasoned that the attachment status of an individual across the lifespan may be inferred from their ability to seek closeness and contact with particular others in times of felt vulnerability.

This view also maintained that, although the specific characteristics of attachment behaviours may change across the lifespan, the expectations of attachment figures, based on earlier experiences, are likely to persist and affect how an individual relates to others (Bowlby, 1973). This *prototype perspective* on attachment has been tested by Fraley (2002) on the basis of longitudinal data obtained from meta-analysis. Fraley also considered the possibility of a *revisionist perspective* which holds that early attachment representations are subject to modification on the basis of new experiences and therefore do not determine attachment patterns in adolescence. However, the results indicated that attachment security was moderately stable across the first 19 years of life and that patterns of stability were best accounted for by prototype dynamics.

Ainsworth, Blehar, Water, & Wall (1978, 2015) built on Bowlby's insights and used a structured laboratory procedure known as the *strange situation* to assess infants' responses to experimentally manipulated episodes of separation and reunion with caregivers. The participants were 23 infants who were between 50 and 57 weeks old, with a mean age of 51 weeks, 9 of whom were girls. These workers coded the children's behavioural responses and identified three distinct categories of infant attachment status including secure, anxious-ambivalent, and anxious-avoidant. Children classified as securely attached were distressed when the caregiver left, welcomed the return of the caregiver, sought closeness and were easily comforted. However children classified as anxious-ambivalent demonstrated unsure behaviour to the caregiver and were difficult to comfort on reunion. Children classified as anxious-avoidant were not distressed by the mother leaving, and evaded closeness or interaction with the caregiver on reunion. Ainsworth et al. (1978, 2015) hypothesised that these different patterns of attachment behaviour had their origins in the extent to which children had found their key attachment figures to be reliable sources of felt-security.

Subsequent work by Main and Solomon (1986), again using the strange situation experimental design, identified a fourth attachment category, which they characterised as disorganised-disoriented attachment. Children classified as having disorganised-disoriented attachment exhibited a fear response when the caregiver left and displayed reticence about contact when the caregiver returned. Main and Solomon (1986) hypothesised that secure attachment was associated with prior interaction with sensitive and responsive caregivers in infancy. In contrast, it was hypothesised that the anxious-ambivalent classification was associated with inconsistent and unpredictable caregiving during infancy, and that the anxious-avoidant classification was associated with insensitive and unresponsive caregiving. The additional category of disorganised-disoriented attachment was hypothesised to be associated with children who had experienced fear of the caregiver.

This pioneering work by Bowlby (1973, 1988); Ainsworth, Blehar, Water, & Wall (1978, 2015); and Main and Solomon (1986), gave rise to a large body of subsequent research. Within this body of research a range of different methodological approaches have arisen with associated controversies within and between different spheres of attachment including for example the domains of; parent-child, adult romantic love, and close friendship. These controversies include considerations about whether attachment patterns should be conceived in terms of categories or continuous dimensions. There have also been disagreements about whether attachment patterns should be measured using observation, self-report, or inferred indirectly as more latent constructs from interviews (Crowell, Fraley, & Shaver, 2008). Although these debates continue, there have been some attempts to reconcile some of the diverse findings. For example, Brennan, Clark and Shaver (1998) carried out a large scale factor analysis of the findings of all known self-report measures of attachment, and reported factor analytic support for a two factor solution involving two orthogonal dimensions of attachment, including anxiety and avoidance.

Armsden and Greenberg (1987) developed the Inventory of Parent and Peer Attachment, as a self-report measure for use with adolescents in the 16-20 age range. Their stated aim was to build on the infant observational procedures of Ainsworth, Blehar, Water, & Wall (1978, 2015) to assess, “not only behavioural elements of adolescent proximity-seeking and support-seeking behaviour but also the affectively

toned cognitive expectancies that the individual has of attachment figures" (Armsden & Greenberg, p.431). Armsden and Greenberg (1987) hypothesised that adolescents' internal working model of attachment figures could be, "tapped by assessing (1) the positive affective cognitive experience of trust in the accessibility and responsiveness of attachment figures; and (2) the negative affective cognitive experiences of anger and/or hopelessness from unresponsive or inconsistently responsive attachment figures (Armsden & Greenberg, 1987, p.431). Therefore the Inventory of Parent and Peer Attachment instrument was designed to assess three broad dimensions including: degree of mutual trust; quality of communication; and extent of anger and alienation. The scale used a five point Likert response format. The revised version of the scale had three sections, relating to mother, father and peers respectively, with 25 items in each. (A copy of the full inventory was obtained through personal communication with M. Greenberg, May 22, 2011). A sample item from the peer trust section was "I trust my friends". A sample item from the peer communications sections was "I can tell my friends about my problems and troubles". A sample item from the peer anger/alienation section was "I feel alone or apart when I am with my friends". Items were modified slightly within the parent sections. A sample item from the mother (father) trust sections was "I trust my mother (father)". A sample item from the parent communications sections was "I can count on my mother (father) when I need to get something off my chest". A sample item from the parent anger/alienation sections was "Talking over my problems with my mother (father) makes me feel ashamed or foolish".

Two empirical studies on attachment patterns and career development were identified in the literature which had particularly close relevance to the aims of the current study. In the first study, Germeijs & Verschueren (2009) worked with 281 final year high school students, including 108 boys and 173 girls, in Dutch-speaking Belgium with a mean age of 17 years and three months. It is reported that more than 50 % of parents had greater than high school qualifications, so it is likely that the school catchment was one of relatively high social economic status (SES). Perceived security of attachment to each parent was measured using the parent items from the Inventory of Parent and Peer Attachment devised by Armsden and Greenberg (1987) as described above. Career decision-making self-efficacy was measured using the short form of the Career Decision Self-efficacy Scale devised by Betz, Klein, and

Taylor (1996), which has been analysed and evaluated in the context of the career goals and career performance attainment section above. The participants' responses to career decision tasks were assessed using the Choice Task Inventory devised by Germeijs and Verschueren (2006), which comprised six subscales including orientation to choice, broad exploratory behaviour, in-depth exploratory behaviours (self and environmental), decisional status, and commitment to decision.

Participants' responses on all of these measuring instruments were first analysed using simple correlation analysis, which showed that higher perceived security of attachment to mother, but not to father, was associated with higher levels of coping with the career decision tasks including orientation to choice, environmental exploration, and self-exploration. Of particular significance from the perspective of the aims of the current study was that Germeijs & Verschueren (2009) found no significant differences in these correlations with regard to gender. Subsequently, Germeijs & Verschueren (2009) used a more complex latent curve methodology, which is a variant of path analysis. The results from this indicated that the associations between perceived security of attachment with mother and career decision tasks were mediated by the participants' career decision-making self-efficacy. However, as noted above in the section on career optimism and pessimism, showing that a path model provides a good statistical fit does not mean that it is the only or even the best fit. Therefore, the path analysis presented by Germeijs and Verschueren (2009) can only be considered as one possible model. This would indicate that a degree of caution is warranted with regard to the amount of certainty with which these complex results should be viewed.

However, it could also be considered a limitation that Germeijs and Verschueren (2009) omitted to include the peer items from the Inventory of Parent and Peer Attachment. This is a particularly significant omission in the light of work by Harris (1995, 2011), which provided a radical challenge to what Harris refers to as the *nurture assumption,* implicit in the work of Bowlby and Ainsworth. Based on an extensive and scholarly review of literature from psychology, anthropology, cultural history, and behavioural genetics, Harris has hypothesised that group socialisation processes in childhood peer groups may be even more important than parent socialisation processes, in forming and modifying enduring personality

characteristics. This line of argument is also congruent with the finding of Ali, McWhirter, and Chronister (2005), noted in the contextual career supports and barriers section above, that perceived support from siblings and peers may be more salient to adolescents making the postsecondary transition than that derived from parents.

In the second empirical study, Vignoli, Croity-Betz, Chapeland, de Phillips, and Garcia (2005) worked with 83 French high school students between 16:5 and 20:8 years with a mean age of 18:11years. The school population was described as being of middle to high social economic status (SES). These workers used a French language version of the Armsden and Greenberg (1997) Parent and Peer Attachment Interview (PPAI) to measure attachment to father and mother. An instrument to assess career exploration as a measure of career development performance was developed specifically for the study. This used principal component analysis with varimax rotation, which yielded five factors including: reading career brochures; requesting vocational information from family members; requesting vocational information from acquaintances; talking to career professionals; and seeking out information unrelated to career plans. The frequency and diversity of each of these five dimensions were measured. The results were analysed using hierarchical regression analysis, which showed that attachment factors contributed significantly to the prediction of frequency and diversity in performance of career exploration tasks for females but not for males. With regard to females, the scores for attachment to mother and father both related positively to the total scores for frequency and diversity of career exploration.

In other work, Wright and Perrone (2008) argued that childhood attachment experiences with early caregivers influenced career development in varied and complex ways. These workers therefore advocated for an integration of attachment theory into Social Cognitive Career theory (SCCT) to capture potentially important interactions between early parent-child attachment relationships and career variables. They hypothesised that background contextual factors, including parental attachment behaviours, can affect career-relevant learning experiences for young people. These workers therefore contended that secure attachment experiences can operate as background contextual factors, which affect learning experiences, which can in turn

develop and reinforce career-relevant self-efficacy beliefs and outcome expectations. It is arguable, therefore, that it is a significant limitation of SCCT that no explicit provision for these fundamental and potentially powerful attachment relations is made by Lent, Brown, and Hackett (1994, 2000) in the formulation of their interest, choice, or performance models.

Wright and Perrone (2008) went on to postulate that attachment-based internalised working models have their hypothesised effect on career related learning experiences through fundamental approach - avoidance mechanisms. This is consistent with the fundamental idea that securely attached individuals will display more environmental exploratory behaviours than those that are less securely attached (Bowlby, 1973). Therefore, by extension it may be argued that individuals in the final years of high school, who have had a positive attachment history with caregivers and peers, and as a result are securely attached, will potentially expose themselves to more efficacy-building experiences as they prepare for the postsecondary transition.

This opens the possibility of a positive reinforcement cycle in which greater career approach behaviours, rooted in secure attachment, result in increased self-efficacy which in turn results in still greater career approach behaviours, and so on. However, the corollary of this prospect is that there is also the possibility of a negative reinforcement cycle, in which individuals that are less securely attached engage in greater career avoidance behaviours which results in a further reduction in career self-efficacy beliefs, which in turn results in fewer career approach behaviours, and so on.

In summary, Germeijs and Verschueren (2009) have shown that high school students who reported greater perceived security of attachment to their mother also reported higher levels of career exploration and career decision-making. Vignoli, Croity-Betz, Chapeland, de Phillips, and Garcia (2005) found that female high school students, but not males, who reported greater perceived security of attachment to their parents also reported greater frequency and diversity of career exploration tasks undertaken. Therefore, this evidence suggests that it may be unfortunate that attachment theory found no explicit place in Social Cognitive Career Theory (SCCT) as originally formulated by Lent, Brown, and Hackett (1994). The studies reviewed

indicate that career-relevant attachment theory has potential relevance to the development of a concept of preparedness for the postsecondary transition and its assessment. The interesting gender differences found by Vignoli et al. (2005) indicated that this under-researched area of career-relevant adolescent attachment functioning could potentially contribute to an understanding of the large observed disparities in attainment of positive postsecondary destinations with regard to gender.

Summary and conclusions

The stated aims of the literature review were to explore potential explanations, from research based on social cognitive theory, about why some young people find it difficult to obtain a positive postsecondary destination. The question of why this difficulty is linked to lower SES and male gender was considered particularly important. It was also an aim that the literature review would inform the process of assessing high school student's preparedness for the postsecondary transition. Ideally this assessment process should inform the design, implementation and evaluation of evidence-based interventions to maximise equal opportunities for positive postsecondary destinations for the whole population of school leavers.

With these aims in mind, a review of the literature was carried out to begin the development process for a concept of preparedness for the postsecondary transition that is both theoretically and operationally robust. A range of studies were analysed and critically evaluated. These studies provided some qualified support for the main hypotheses of Social Cognitive Career Theory (SCCT) as they applied to young people making the transition from high school to postsecondary destinations in employment, education and training after school. This has confirmed that, with reference to the postsecondary transition, associations do exist between a range of core constructs as hypothesised within SCCT, including personal cognitive factors such as learning experiences, self-efficacy beliefs, outcome expectations, and goals. Therefore, the evidence analysed in this literature review confirmed many of the core hypotheses of SCCT and also indicated that these core constructs from SCCT should be considered relevant to the development of a concept of preparedness for the postsecondary transition.

The literature review has also shown the salience to the postsecondary transition of a group of additional personal cognitive constructs not currently considered part of SCCT. These additional constructs included career optimism, career pessimism, career attributions, career-relevant implicit self-theories, and career-scaffolding attachments. The evidence would indicate that these additional cognitive constructs should perhaps be more explicitly integrated into future formulations of SCCT. Studies analysed and evaluated in the literature review have also confirmed the existence of associations between this enlarged group of personal cognitive factors, and the environmental factors within SCCT, such as career supports and barriers as they are perceived by young people preparing to leave school. The evidence presented in the literature review has shown that, within the domain of the postsecondary transition, significant associations also pertain between the enlarged group of personal cognitive career factors and these environmental factors, and also with behavioural factors within SCCT including performance of career relevant activities. Furthermore, several studies have shown significant associations between SES and gender on the operation of some personal, environmental factors, and behavioural factors within an SCCT framework, although other studies found no significant difference as a result of these factors. Therefore, on the basis of the evidence from this review it could be argued that SCCT, augmented with additional psychological constructs which have been shown to be salient in the literature review, does provide a helpful basis for the development of a theoretically robust and empirically-evidenced concept of preparedness for the postsecondary transition.

However, it was clear from the literature review that no single assessment instrument existed which attempts to measure a comprehensive range of social cognitive factors in a practical and compact way. As shown by the analysis carried out in the literature review, some of the instruments used in previous studies had a range of practical limitations. It could be argued that these limitations make them unsuitable for applied, real world assessment purposes with regard to improving outcomes in the postsecondary transition. These limitations included that currently available assessment instruments are numerous, long and of variable quality with regard to their structure, and content and construct validity. However, perhaps the most important limitation was that many instruments reviewed lacked domain-specificity

for the postsecondary transition. Betz and Hackett (2006) have also emphasised this point when they argued that: “What are needed to test SCCT for one domain of behaviour are *parallel* measures of self-efficacy, outcome expectations, interests and choices,” (p.9).

Therefore, there is a need for the development and empirical validation of a shorter, simpler instrument, which is more closely focussed on the social cognitive factors which have been shown to be most empirically salient to the postsecondary transition, and which measures them in a domain-specific and parallel fashion. Ideally, this instrument should be constructed in a compact, practical format that could be completed by teachers or other educational professionals in collaboration with young people within a single session of approximately one hour. It is this gap for a practical but empirically robust assessment instrument, that measures SCCT constructs salient to the postsecondary transition, which this current study seeks to fill.

It was also a particularly striking feature of the literature review that no study was found with close relevance to the postsecondary transition which measured socioeconomic status (SES) in a way that fully captured its multi-dimensional nature, in order to ensure good content validity. This lack is particularly unfortunate given the apparent salience of this factor in relation to the significant disparities in attainment of positive postsecondary destination with regard to SES. Therefore, research on how the identified SCCT constructs vary in relation to a more robust, multi-dimensional measure of SES was also recognised as a major gap in the pre-existing literature.

The literature review has highlighted the fact that the majority of studies found were correlational in their design and methodology, often using multiple regression techniques. This meant that no inference of causality or directionality can be inferred from such evidence. It was a particularly striking weakness that some studies used complex mathematical modelling techniques, including structural equation modelling and path analyses, despite the fact that there were fundamental faults with the construction characteristics of underlying measurement instruments used. These fundamental construction faults in measurement instruments included examples of

poor face and content validity for the construct they purported to measure, inconsistency with underlying social cognitive theory, lack of uni-dimensionality, and apparent conflation between related but theoretically distinct constructs. These scale construction weaknesses were found to be particularly problematic when psychological arguments were based on empirical correlations between scales that purported to be uni-dimensional and discrete, which in reality were overlapping and indistinct. It has been noted that these fundamental weaknesses have also been compounded in some studies by the fact that the cited correlations themselves were quite small, which achieved statistically significance as a function of large sample size. Therefore, the meaningfulness of these small correlations in practical terms may be limited and at risk of over interpretation, as such small correlations can only account for a limited portion of the total variance.

Nevertheless, a small number of studies were found which used an experimental or quasi-experimental design. These studies were highlighted as particularly promising empirical design models for future research, which could potentially confirm the existence of causal relationships among the personal cognitive, environmental and behavioural factors from SCCT, and also between these factors and the additional person factors of social economic status (SES) and gender. An experimental or quasi-experimental approach to future research could potentially be very powerful in developing and rigorously testing the proposed new instrument for the assessment of preparedness for the postsecondary transition inventory. Such research approaches could also be useful for subsequently designing, implementing and evaluating closely targeted intervention programmes to improve postsecondary destination outcomes for the whole population of school leavers.

Therefore in conclusion of the literature review, it is recommended that a more comprehensive, but simpler and compact, assessment instrument with empirically evidenced content and construct validity be designed and tested. The literature review has identified, referenced, analysed and evaluated a range of social cognitive career factors, which have been shown to be salient to the development of a concept of preparedness for the postsecondary transition. It is advocated that these factors be used to formulate a domain-specific, and parallel component items for the proposed

new assessment instrument. The social cognitive factors identified in this way can be summarised as follows.

1. Positive destination self-efficacy beliefs.

2. The four generic sources of learning experiences:

- Past performance;
- Vicarious experience;
- Social persuasion;
- Emotional arousal.

3. Eight enabling social cognitive constructs including:

- Career outcome expectations;
- Setting career goals;
- Performing career development tasks;
- Contextual career supports and barriers;
- Career optimism and pessimism;
- Career attributions;
- Career mindset;
- Career scaffolding attachments.

The next chapter in the report will describe the methods employed in the empirical part of the study and results obtained.

Chapter 3: Methods and Results

Empirical exploration of the concept of preparedness for the postsecondary transition

The literature review of previous research has identified thirteen constructs from Social Cognitive Career Theory (SCCT) and other areas of social cognitive theory, which are potentially relevant to the development of a concept of preparedness for the postsecondary transition. This has included the identification of three distinct groups of factors hypothesised to be salient to young people as they prepare for the postsecondary transition. These included: 1. self-efficacy beliefs about achieving a positive postsecondary destination; 2. four generic sources of learning experiences; and 3. eight enabling social cognitive constructs.

The aim of the practical phase of this research study was fourfold. Firstly, to perform statistical tests to determine if the observed pattern of greater failure to obtain a postsecondary destination in school leavers living in areas designated as lower social economic status SES, and in males compared to females, is statistically significant. These tests will be carried out on the data on postsecondary destinations at national level which has already been presented in the introduction section, and also on equivalent data at the level of the local authority within which the empirical research study was carried out. Secondly, to design and implement a pre-empirical inventory derived from the three groups of cognitive constructs identified in the literature review as potentially pertinent. Thirdly, to empirically explore the responses of senior high school students on this pre-empirical inventory, to statistically test the accuracy and internal cohesion of the logical clustering of the proposed social cognitive constructs derived from the literature review. This will provide information to enable any necessary re-structuring of these constructs to provide more robust post-empirical factors, together with descriptive statistics about their internal consistency. Fourthly, to perform statistical tests on the participants' response data to explore a range of hypotheses about differences between young people experiencing different levels of social deprivation, and between males and females, in terms of the identified post-empirical social cognitive factors. Therefore the following hypotheses will be tested in the empirical phase of the study.

1. High school students who live in the more deprived areas of both the national and local research populations will be less likely to enter a positive destination on leaving school than those from less deprived areas.
2. Male high school students in both the national and local research populations will be less likely to enter a positive destination on leaving school than female school leavers.
3. Factor analysis of senior high school student's inventory responses will provide statistical confirmation that the logical clustering of the thirteen social cognitive career factors, from the three distinct groups identified in the literature review are salient to young people as they prepare for the postsecondary transition.
4. Participants from lower socioeconomic backgrounds will report lower levels of self-efficacy beliefs that they can obtain a positive postsecondary destination in education, employment or training than those from higher socioeconomic backgrounds.
5. Participants from lower socioeconomic backgrounds will report lower exposure to the learning experiences that are putative sources of self-efficacy belief and outcome expectations including: past performance; vicarious experience; social persuasion; and emotional arousal.
6. Participants from lower socioeconomic backgrounds will report lower career outcome expectations.
7. Participants from lower socioeconomic backgrounds will report lower ability to set career goals.
8. Participants from lower socioeconomic backgrounds will report lower performance of career development tasks.
9. Participants from lower socioeconomic backgrounds will report lower perceptions of contextual career supports and higher perceptions of contextual career barriers.
10. Participants from lower socioeconomic backgrounds will report less career optimism and greater career pessimism.
11. Participants from lower socioeconomic backgrounds will report lower internal attribution of career outcomes.
12. Participants from lower socioeconomic backgrounds will report higher levels of fixed career mindset and lower levels of growth career mindset.

13. Participants from lower socioeconomic backgrounds will report fewer perceptions of career scaffolding attachments.

Achieving a positive postsecondary destination: social deprivation and gender

The first task of the empirical phase of the thesis was to perform statistical tests to determine if the observed pattern of greater failure to obtain a postsecondary destination in school leavers living in areas with lower social economic status (SES), and in males compared to females is statistically significant. These tests were carried out on the data on postsecondary destinations at national level, which has already been presented in the introduction section, and also on equivalent data at the level of the local authority which hosted the research study.

It will be recalled that the preliminary analysis of the data on postsecondary destinations for all Scottish school leavers, presented in the introduction section of the thesis, indicated that a greater proportion of young people living in areas of higher social deprivation fail to achieve a positive postsecondary destination, when compared to young people living in areas of lower social deprivation. This is shown in Figure 1 in the introduction section.

Statistical analysis using Spearman's rho showed that there was a significant negative correlation between the percentage of school leavers who were categorised as Unemployed Seeking in each decile ranking of the Scottish Index of Multiple Deprivation (SIMD) and the SIMD decile ranking numbered 1 to 10, where decile 1 had the greatest deprivation and decile 10 least deprivation, $r_s(8) = -.99$, $p < .001$, two-tailed. This clearly indicated that there was a very strong statistical relationship between increasing levels of social deprivation and an increasing percentage of young people who failed to obtain a positive postsecondary destination on leaving school in the whole population of Scottish school leavers in year 2013-2014.

It will also be recalled that the preliminary analysis of the statistics on postsecondary destinations for all Scottish school leavers in the year 2013-2014 clearly indicated that male school leavers are substantially more likely to have a negative destination than females. This relationship is shown graphically in Figure 3 of the introduction.

In order to test the statistical significance of this a 2 x 2 contingency table was constructed from this data. This contingency table is shown in Table 1. This contingency table was used to calculate a two-tailed Chi-Square statistic. This was $\chi^2(1, N=51,876) = 160.72, p < .0001$, two tailed. This indicated that the association between male gender and failing to obtain a positive postsecondary destination on leaving school was highly statistically significant within the whole Scottish population of school leavers in the year 2013-2014.

Table 1. Number of total Scottish 2013-2014 school leaver population who were Unemployed Seeking on 6 October 2014 shown by gender, (Skills Development Scotland, 2014, p. 9)

Gender	Positive Postsecondary destination	Unemployed Seeking	Total
Male	24,286	1,997	26,283
Female	24,339	1,254	25,593
Total	48,625	3,251	51,876

The next research task was to examine and analyse the equivalent pre-existing data relating to the host local authority, to determine the extent to which the patterns in achieving positive postsecondary destinations, found at national level, also pertained at the level of the host local authority. Skills Development Scotland is required by the Scottish Government to collect data on the postsecondary destinations of school leavers, not only at national level but also at the level of individual local authorities. These data are published annually in the Community Planning Partnership Report. The data which related to the host local authority from the year 2013/14 was collected on a snapshot date on 6 October 2014 (Skills Development Scotland, 2015). The report relates to 4,725 school leavers from publicly funded secondary schools in the host local authority. Of these, 416, which represent 8.8% of the total school leaver population, were recorded as Unemployed Seeking. As noted in the introduction section of the thesis, this category included those young people in contact with Skills Development Scotland, and who were known to this agency as being without an educational placement and seeking employment or training. This was therefore a good measure of those young people who do not have a positive postsecondary destination at the snapshot date of 6 October 2014.

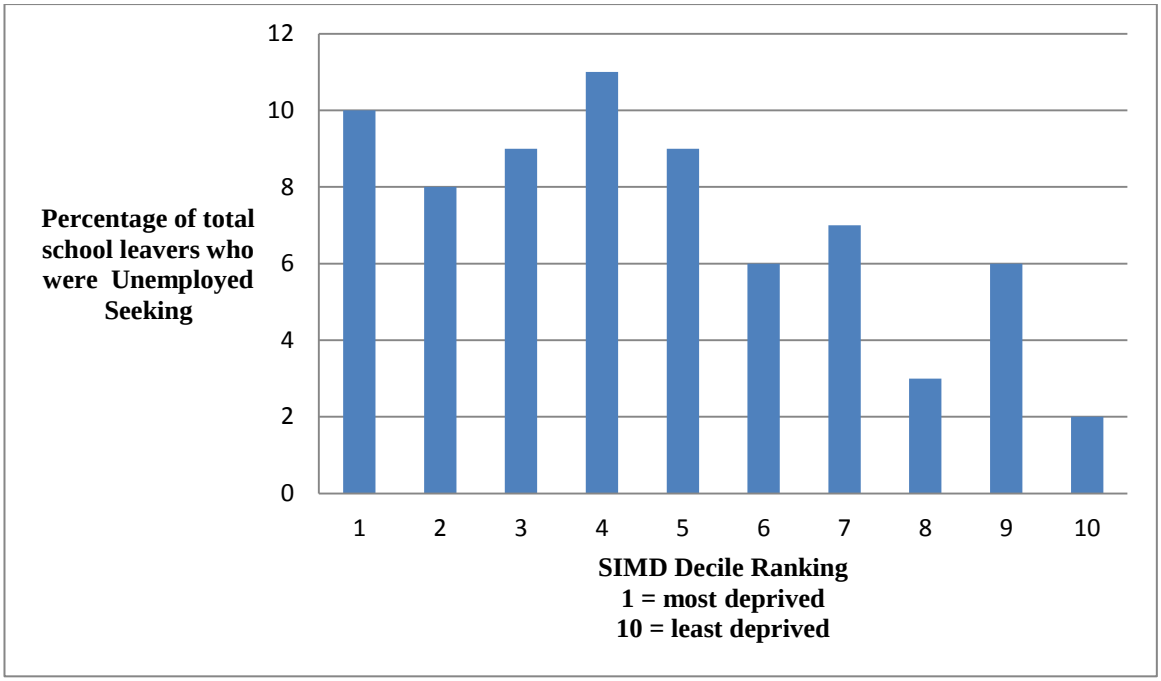

Figure 8. Percentage within each SIMD Decile of the total research area school leaver population who were Unemployed Seeking on 6 October 2014. (17% of total with unknown SIMD Ranking), (Skills Development Scotland, 2015, p. 12)

Comparing this figure to the national rate quoted in the introduction section, it can be seen that it was 2.5 percentage points higher than the national figure of 6.3% at the same snapshot date. However, the broad pattern was similar with regard to the relationship between failure to achieve a positive destination and deprivation, as shown in Figure 8. It can be seen that, in general, school leavers who live in the more deprived areas of the research area are less likely to enter positive destinations on leaving school than those from less deprived areas. Of school leavers from the most deprived areas, 10% do not achieve a positive postsecondary destination compared to 2% of school leavers from the least deprived areas. These percentages are identical to those found in the national population at the same snapshot date, as reported in the introduction section of the thesis. It can be seen, however, that the distribution with regard to the local research area is much more uneven than the equivalent distribution for the national population shown earlier in Figure 1. This difference may in part be attributed to the smoothing effect of the larger sample size of the national population. However, it may also be attributed in part to the effectiveness of the Opportunities for All policy (Scottish Government, 2012a) of targeting those young people identified to be at greatest risk of a negative postsecondary destination.

These young people are then designated as having an Activity Agreement and are therefore removed from the Unemployed Seeking category. Young people in this category are represented in greater numbers in Deciles 1, 2 & 3, which has also contributed to the greater unevenness of the distribution shown in Figure 8, compared to the equivalent national distribution shown in Figure 1.

Statistical analysis using Spearman's rho showed that there was a significant negative correlation between the percentage of school leavers who were categorised as Unemployed Seeking in each decile ranking of the Scottish Index of Multiple Deprivation (SIMD) and the SIMD decile ranking numbered 1 to 10, where decile 1 had the greatest deprivation and decile 10 least deprivation, $r_s(8) = -.83$, $p < .003$, two-tailed. This confirmed that there was also a very strong statistical relationship between increasing levels of social deprivation and the increasing number of young people who fail to obtain a positive postsecondary destination on leaving school in the population of school leavers in the host local authority in year 2013-2014.

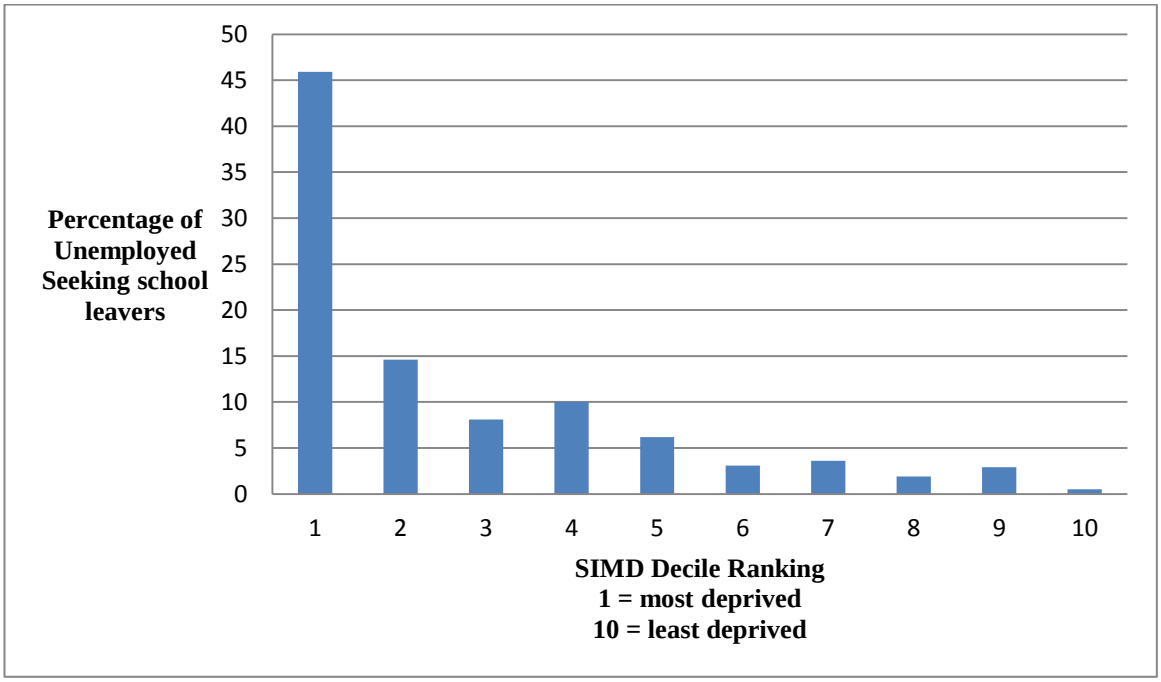

Figure 9. Percentage of the Unemployed Seeking research area school leavers on 6 October 2014 shown by SIMD ranking (2.3% of total with unknown SIMD Ranking), (Skills Development Scotland, 2015, p. 20)

The Community Planning Partnership Report also provides data on the distribution characteristics of the Unemployed Seeking school leaver population itself. This allows data to be presented on the percentage share of the total Unemployed Seeking population contributed by each SIMD decile rank. Data from the year 2013/14 is presented on this basis in graphical form in Figure 9, which again gives snapshot data for the 6 October 2014 (Skills Development Scotland, 2015). It can be seen that school leavers from SIMD decile ranks 1 and 2 account for 45.9% and 14.6% respectively of the total number of young people who fail to achieve a positive postsecondary destination in the host local authority population. In contrast school leavers from SIMD decile ranks 9 and 10 account for only 2.9% and 0.5% respectively.

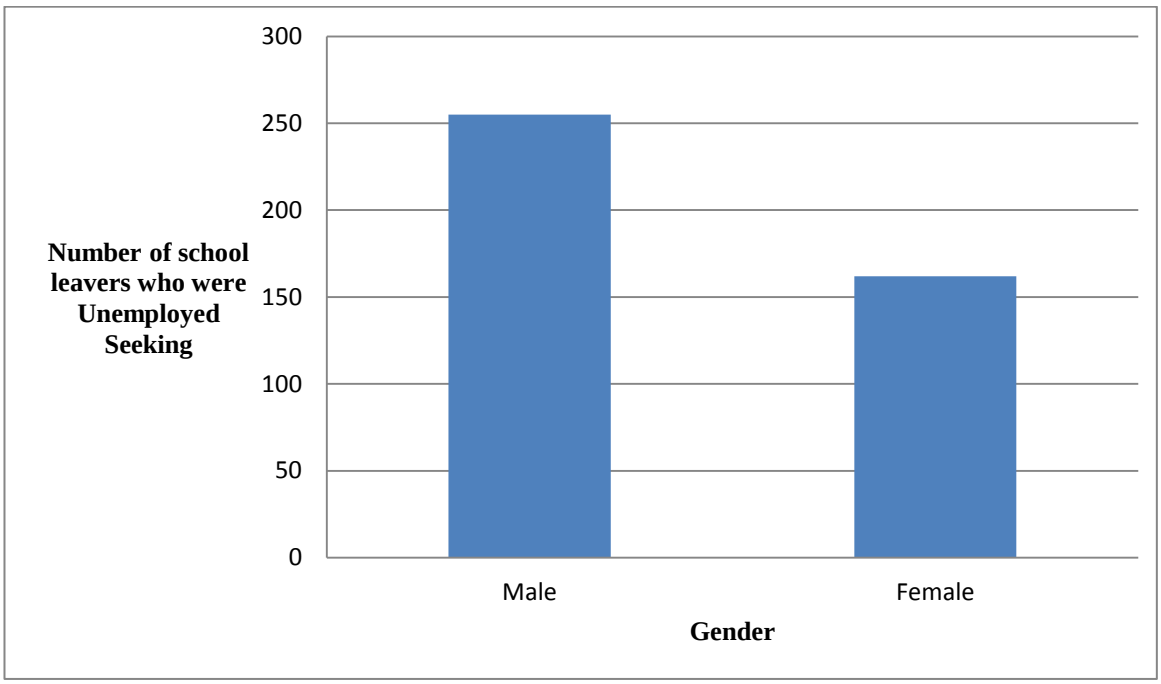

Figure 10. Number of total research area school leavers who were Unemployed Seeking on 6 October 2014 shown by gender, (Skills Development Scotland, 2015, p.11).

The same report provides data on the school leaver destinations split by gender for the host local authority population, (Skills Development Scotland, 2015 p. 9). This relationship is shown graphically in Figure 10. This indicates that 255 male school leavers did not achieve a positive postsecondary destination, which was 11.0% of the total of male school leavers. In contrast, only 161 female school leavers did not achieve a postsecondary destination, which was 6.7 % of the total population of

females. Therefore, as is the case for the wider Scottish population at national level described in the introduction section of the thesis, failure to achieve a positive destination is substantially higher in male school leavers than in females. However, the gender difference is considerably greater in the host local authority population than in the national population. Failure to achieve a positive destination is 4.3 percentage points higher in male school leavers than female school leavers in the host local authority population at the snapshot date of 6 October 2014. This is a considerably greater difference than the comparable figure of males showing only 2.7% greater incidence of failure to achieve a positive destination compared to females in the national population, as identified in the introduction section.

In order to test the statistical significance of the apparent difference between male and female school leavers in the local authority in which the research was carried out a 2 x 2 contingency table was constructed from this data. This is contingency table is shown in Table 2. This contingency table was used to calculate a two-tailed Chi-Square statistic. This was $\chi^2(1, N=5,725) = 26.97, p<.0001$, two-tailed. This indicates that the greater incidence of failure to obtain a positive postsecondary destination in males compared to females within the host local authority school leavers in the year 2013-2014 was highly statistically significant.

Table 2. Number of host local authority 2013-2014 school leaver population who were Unemployed Seeking on 6 October 2014 shown by gender, (Skills Development Scotland, 2015, p. 11)

Gender	Positive Postsecondary destination	Unemployed Seeking	Total
Male	2,067	255	2,322
Female	2,242	161	2,403
Total	4,309	416	5,725

In summary, analysis of data collected by Skills Development Scotland (2014, 2015) has shown the following statistically significant results. There was a statistically significant correlation between the percentage of school leavers who failed to achieve a positive postsecondary destination and increasing levels of social deprivation. The number of school leavers who failed to achieve a positive postsecondary destination was significantly greater for males than for females. Both of these statistically significant effects have been shown to exist within the Scottish

population of school leavers as a whole, and also within the population of school leavers in the local authority which hosted the current research study.

Research area school population and selection of the sample

The local authority which hosted the research was a very large urban authority, which organised education in three geographical sub-areas. The local authority administered a total of thirty mainstream secondary schools. These are shown in Table 3 ranked by social deprivation, as measured by the percentage of free school meals. It can also be seen that there were a total of 9 schools in Area 1, 10 in Area 2, and 11 in Area 3.

Table 3. Showing the ranking of free school meal entitlement for all schools in the host local authority area together with the positioning of the research sample schools

School rank in local authority area	Local Authority Area	% Free school meals	Research Sample schools
1	1	8.6	1. Atypical
2	2	12.2	
3	1	12.9	2. Main Study (HYD)
4	3	18.9	
5	3	19.6	
6	3	20.9	
7	1	21.2	3. Main Study (HHD)
8	3	23	
9	3	25.4	
10	2	26.5	
11	1	26.7	4. Main Study (KSS)
12	3	27	
13	1	27.3	5. Atypical (NDM)
14	3	28.1	
15	1	28.9	7. Not included
16	3	30.1	
17	2	30.2	
18	2	31.8	
19	1	32.2	8. Main Study (JPA)
20	1	32.7	6. Main Study (STA)
21	2	34.1	
22	2	35.6	
23	2	36.2	
24	2	40	
25	1	40.1	9. Main Study (DHS)
26	2	42	
27	3	43.2	
28	3	44.9	
29	2	45.7	
30	3	47.6	

It should be noted that at the time of the research the writer was employed as an educational psychologist in Area 1. It was only possible to negotiate cooperation and permission to carry out the research within this segment of the local authority. Therefore, Area 1 was designated in this thesis as the *research area*. Additional data on the school roll and social deprivation status of the catchment areas of the nine mainstream secondary schools present in the research area in which the study was based are shown in Table 4. It can be seen that this includes data on the percentage of school roll drawn from the three most deprived vigintile ranks (twentieth portions) of the Scottish Index of Multiple Deprivation (SIMD). These three most deprived vigintile ranks together represented the most deprived 15% of the population, in Scotland-wide terms. This information was available only for the schools in Area 1 of the local authority.

Table 4. Characteristics of all secondary schools in the research area

School	% of school roll in the 15% most deprived SIMD	School Roll	S5 Roll	Sample Size	S6 Roll	Sample size
1. Atypical (GGS)	11.7	263	28		30	
2. Main Study (HYD)	20.1	1029	169	138	149	86
3. Main Study (HHD)	28.9	1028	167	91	149	79
4. Main Study (KSS)	36.9	1347	261	144	174	94
5. Atypical (NDM)	38.2	660	111		79	
6. Main Study (STA)	40.5	906	142	136	127	96
7. Not included (CLV)	46.5	600	114		124	
8. Main Study (JPA)	68.0	816	153	53	86	28
9. Main Study (DHS)	85.4	413	83	60	56	39

The ideal theoretical population for the study overall was identified as the whole population of school leavers in Scotland, as it was an aim that the post-empirical inventory should have applicability beyond the confines of the immediate research area. It was also an objective that any substantive findings, in terms of differences found in social cognitive factors, with regard to SES and gender, should have as

much generalisability as possible beyond the immediate research context. It was therefore an aspiration that the findings of the research should, as far as possible, be generalisable to the whole population of school leavers in Scotland, and possibly also to the UK and beyond. However, it was recognised that this aspiration was constrained by the schools available within, not only the research area, but also the host local authority as a whole.

Two of the nine schools in the designated research area were deemed to be atypical both in terms of the local authority and the national population. The first of these was school 1, which was deemed atypical because it delivered the curriculum exclusively in Gaelic language medium, and was also by far the smallest secondary school in the local authority. It can be seen that it also had a much smaller percentage of its roll drawn from the most deprived 15% segment of SIMD than any other school in the local authority area by a large margin. The second atypical school was School 5 which was also deemed unrepresentative because it was a female only school.

However, it can be seen that the remaining schools served catchment areas with wide-ranging levels of social deprivation, extending from 20.1% to 85.4%. Therefore, schools 2, 4, 6, 8 and 9 were chosen to be included in the research population because they provided the widest possible range of catchment deprivation levels present in both the research area and also the wider local authority. Indeed school 2 had one of the most advantaged catchment areas and school 9 had one of the most disadvantaged catchment areas, in the host local authority as a whole.

After considerable reflection, School 3, being the next most socially advantaged school in the research population was also included in the school research sample in an attempt to over-weight the sample selection with schools that serve the most advantaged catchment areas. This was done in an attempt to counteract the anticipated skew in the host local authority population, in order to make it as comparable as possible with the theoretical national population. Therefore the final sample for the main study population sample was drawn from schools 2, 3, 4, 6, 8 and 9.

On closer scrutiny and reflection, it was recognised that it was impossible to create a sample which was a close approximation to the national population from within the constraints of the nine schools available in the research area. Therefore, it was considered important to determine, and if possible quantify, the extent to which the research population diverged from the national population. In order to do this the SIMD distribution for the research population and the population of the host local authority are shown together for comparison with the theoretical distribution of the whole population in Scotland in Figure 11.

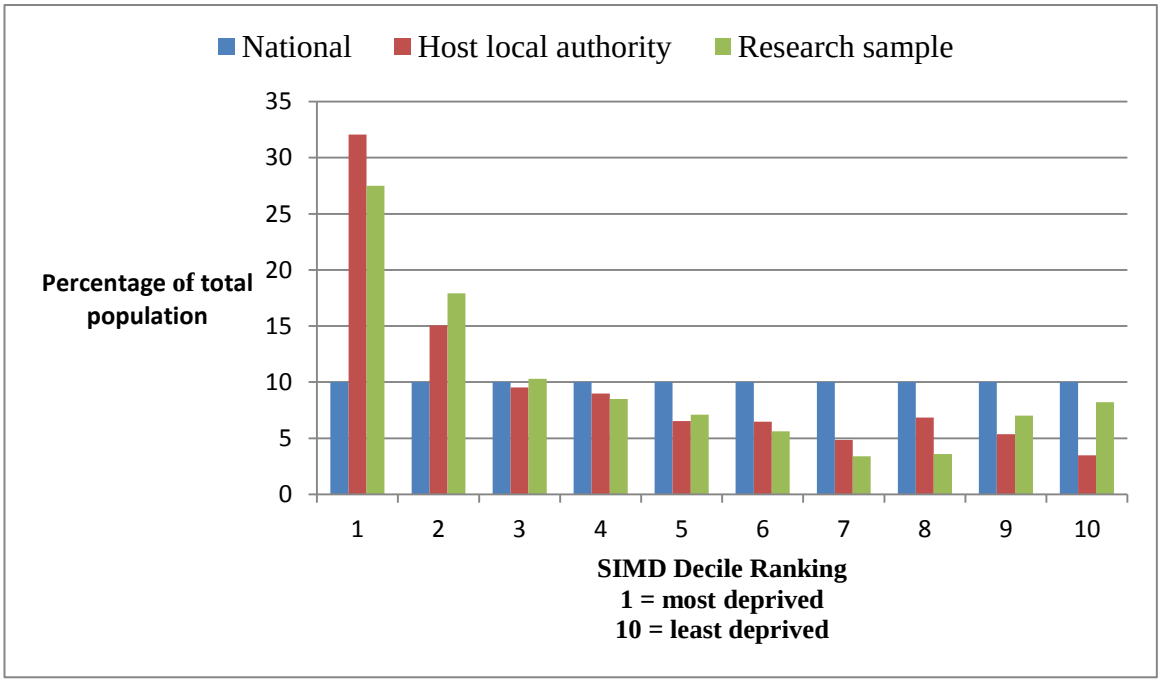

Figure 11. Percentage of the national, host local authority, and research sample populations in each SIMD decile (SIMD 2012). (Glasgow Indicators Project, 2013).

By definition the national population was distributed evenly with 10% in each SIMD decile rank. As expected, it can be seen from Figure 11 that the population in the host local authority where the research was carried out was highly skewed towards the more deprived SIMD decile rankings. However, it can be seen that the percentage of the research sample in deciles 1, 3, 5, 9 and 10 was marginally more similar to national population than the host local authority as a whole. Although the percentage of the research sample in deciles 2, 4, 6, 7 and 8 was marginally less similar to the national population than the host local authority as a whole. Therefore, overall it was clear that the sampling strategy of including the two schools which

served the most advantaged catchment areas within the research area was not effective in addressing the sampling limitations and constraints of the population available in the host local authority. The distribution of social deprivation in the research sample of school leavers remained heavily skewed towards higher levels of social deprivation.

Design and implementation of the pilot inventory

The first step in constructing the experimental inventory was to create an item pool from which to select items. This was achieved by generating items from three sources. These included: (a) the literature review on Social Cognitive Career Theory (SCCT) constructs and other associated social cognitive constructs, particularly where possible, in direct relation to young people preparing for the postsecondary transition; (b) existing questionnaires and inventories and; (c) the writer's experience in practice as an educational psychologist.

With regard to the first source, the individual references which had contributed to the development of pre-empirical concept of preparedness for the postsecondary transition in the literature review were re-examined. In this way it was possible to create numerous items based on the findings of the key papers reviewed. This was recognised as one of the most prevalent and popular methods employed in item generation (Zeller and Carmines, 1980).

In terms of the second source, a selection of items was added to the item pool after reviewing a number of existing inventories and questionnaires from key papers in the literature review. One advantage of this process was the benefit of the work of previous researchers in systematic item development. However, within this process it was recognised that the literature review had identified a range of limitations and faults with pre-existing measuring instruments. Therefore, the pre-existing instruments were systematically examined and evaluated item by item. Only items which were identified as having the potential to contribute to the reliability and validity of the underlying construct which they purported to measure were included. Items were considered regardless of whether they were phrased as statements or

questions, open or closed, positive or negative, as almost all the items that were ultimately selected were amended to some degree.

As the third source, many of the items were written by the writer. These items were the product of personal experience including current practice as an educational psychologist, and previous work as a school teacher, and lecturer in further and higher education. This experience was inevitably an organising influence on the distillation and selection inherent in the process of logical clustering of social cognitive career factors in the literature review. It was also a guiding and driving force for the items generated by the writer.

Together these three sources generated 106 items in total, which are shown in Appendix 1. The source of each item is also shown. If it was derived from the literature review then the name of the author and date of the publication is shown. Those generated by the writer are designated *Writer*. The next stage involved selecting the most appropriate items for each of the factor definitions identified in the literature review. Item selection was carried out by a process of editorial review by the writer, which entailed narrowing down and selection of items in each of the factor areas identified in the literature review.

The initial editorial review of the item pool

The item pool of 106 items ranged between four to seventeen items per construct. The initial task was to reduce this to a smaller number of items per construct to make up the scales of the pilot inventory. This reduction was based on conceptual, logical and language considerations. The general approach employed in narrowing down these items was to select those that most closely related to the conceptual components of the construct. This was done to increase the content validity of each factor scale. For each construct an attempt was made to achieve a mixture of items that were phrased in a more abstract manner with those which were more descriptive in social, cognitive, emotional and behavioural terms. This item selection process produced 50 items ranging from four to six items per factor definition. These 50 items were then proof read by three individuals including an educational psychologist, a learning support teacher, and a health worker experienced in

assessing young people in the target age range, who are looked after and accommodated. They each received a brief verbal account of the nature of the study and a detailed explanation of what would be required of them as shown in Appendix 2. They then received a list of the 50 items with a brief description of the present study and the instructions for proof reading. The proof readers were asked to examine each of the items for clarity, grammar, spelling and naturalness of expression, so that they would be understood by a wide range of 16-18 year olds in Scottish schools. The last step was to inspect the various amendments suggested by the proof readers and then decide what should be included in the final editing of the items. An important aim of the proof reading process was to make the individual items as clear and understandable as possible for the research population.

Assembly of the pilot inventory

It will be recalled that the literature review identified three distinct sub-groups of constructs including:

1. self-efficacy beliefs about achieving a positive postsecondary destination, with a single construct;
2. the generic sources of learning experiences, with four constituent constructs;
3. eight enabling Social Cognitive Constructs.

Therefore, the final 50 items selected to be included in the pilot inventory continued to reflect this three part structure. The inventory items within these three sub-groups are presented construct by construct in Appendix 3. However, the final format of the pilot inventory involved dividing the questionnaire in two parts, as shown in Appendix 4. Part 1 contained the items of the Positive Destination Self-Efficacy sub-group, which were formulated as statements about beliefs the participants may have about their capability to obtain a positive postsecondary destination. An example of a question in this section was, “I can get a positive destination when I leave school”. The response format of these self-efficacy belief items was derived in part by following specific guidance for constructing self-efficacy scales by Bandura (2006). This response format employed a scale from nought to one hundred on which participants were asked to rate their degree of confidence that they could

successfully carry out the specified action. It can be seen that a response of 0 indicated *no confidence at all*, through to a score of 100 which indicated *complete confidence*. However, it can also be seen that an important refinement was made to the response format in that, rather than choosing a response graduated in units of ten as recommended by Bandura (2006), the participants were required to place a cross on a continuous line from 0 to 100, graduated in units of 10. Therefore, the participants could choose their response from any possible position along an unbroken continuum. As a result of this refinement it will be argued that data obtained from the continuous response format can justifiably be treated as a measured continuous scale variable, and so be subjected to parametric statistical analysis.

It can be seen from Appendix 4 that items which represented the remaining sub groups 2 and 3 used a different response format. Again this involved a rating scale from 0 to 100. However, on this rating scale participants were asked to rate the degree to which they agreed with the statement in question. A response of 0 indicated *Strongly Disagree* through to a score of 100 which indicated *Strongly Agree*. For example, for items which represent the Sources of Positive Destination Self-efficacy sub-group, participants were asked to indicate the extent they agreed with the statement "I have already experienced some success in my education". As before the participants were required to place a cross on a continuous line from 0 to 100. Therefore, as previously, the participants could choose their response from any possible position along an unbroken continuum, thus enabling the data obtained from the continuous response format to be treated as measured continuous scale variables, and hence suitable for parametric statistical analysis.

In order to make the questionnaire simpler to complete by participants, items from Positive Destination Self-efficacy sub-group, because they used a different measuring scale, were placed in a separate section entitled Part 1. The items from the other two factor groups, which used the same agreement scale, were combined in Part 2. In the format presented to the focus group participants, the item order in Part 2 was randomised. As noted above, the format of the questionnaire which was actually completed by focus group participants can be viewed in Appendix 4.

Ethical considerations

Before the commencement of the study ethics approval was sought and obtained from two sources. These included the University Research Ethics Committee and the Research Consultancy Group at the Psychological Service in the local authority which hosted the research. Informed consent for the research was obtained at five different systemic levels including the (a) University of Dundee, (b) the host Local Authority, (c) the six participating schools via the Head Teachers, the (d) participants and (e) their parents.

Participants were included in the study only on the basis of positively affirmed consent for this specific study, at the specified time period, and for the specific activities described in the Participant Information Sheets (Appendices 5 and 10). It was made clear to participants in the Participant Information Sheets that they could decline to participate in the research or withdraw after commencement without difficulty, penalty or loss of entitlement to services. This was also confirmed verbally at all data collection sessions. Consent was obtained from the participants using the Participant Consent Forms (Appendices 6 and 11) and also from the participant's parents on the Parent Consent Forms (Appendices 7 and 12).

The participants were clearly and explicitly informed about the specific aims, purposes, methods, and likely dissemination of findings of the research. The likelihood of any potential harmful consequences for participants was considered very low. The research design required no deception therefore participants were given full information about the project in advance. At the end of each data collection session participants were given the opportunity to discuss their experience of the research, to monitor any unforeseen misconceptions, or negative effects such as stress or anxiety. This opportunity was offered explicitly at the end of each data collection session. An invitation was also extended for further discussions on a one-to-one basis with the researcher, should individual participants wish to do so. Participants were informed in the Participant Information Sheets (Appendices 6,7, 11 and 12) that data would be held in an individualised form only for as long as necessary to load it on to SPSS, and that beyond that point the individual traceability of data would no longer be possible. However, participants were made aware that the

anonymous collective research data would be stored in accordance with the Data Protection Act (1998) and destroyed after a period of 10 years.

All manual records were stored in a locked filing cabinet on the secure premises of the Psychological Service at the host local authority. Participant responses were stored in the Statistical Package for the Social Sciences (SPSS) on a no-name basis on a computer and associated secure server at the secure premises of the Psychological Service at the host local authority. Similarly, the audio recordings of focus groups were stored as electronic audio files on a computer and associated secure server in the secure premises of the Psychological Service at the host local authority. Access to the files on this computer was protected by an encrypted password known only to the researcher. In order to give further protection of confidentiality, data remained personally identifiable only until loaded onto SPSS as described above. For the short period required, the identifier codes which related data to named individuals were stored in a code book which could be accessed only by the researcher. This code book was stored in a locked filing cabinet on the secure premises of the Psychological Service at the host local authority.

Procedure for administration of the pilot inventory and focus groups

The main purpose of the pilot inventory was to elicit and collect feedback from within the participant population on how understandable and relevant it was to the target population of school-leavers. Another aim was to collect ideas for questions which were important for young people with regard to the postsecondary transition, but had not occurred to the writer. Consequently it was decided that a good place to conduct the pilot study was in a single school, which was chosen to provide a sample as representative as possible of the whole of the school leaver population in the research area. School 6 was chosen for the administration of the pilot inventory and focus groups. It can be seen from Table 4 that the range of deprivation levels present in the six research population schools spanned from 20.1% of school roll in the three most deprived vigintiles ranks (twentieth portions) of SIMD to 85.4%. School 6 is in the middle of this range with 40.5%.

Two groups of eight young people were recruited from the school identified for the pilot study; one group from secondary Year 5 and one group from secondary year 6. Each of these groups was intended to comprise four males and four females, recruited on a random basis from the whole population of school leavers in the relevant year group in school. This recruitment was carried out in collaboration with a Principal Teacher from the school. Focus Group 1, recruited from secondary year 5, finally consisted of seven young people, including three males and four females, as one prospective male participant was absent on the day of administration. The age range of participants spanned from 16 years 2 months to 17 years 11 months. The median age was 16 years 9 months. Focus Group 2 was recruited from secondary year 6 and finally consisted of six young people including four males and two females, as one prospective female participant was absent on the day of administration and another chose to invoke the right to withdraw without explanation. The age range spanned from 17 years 5 months to 17 years 11 months. The median age was 17 years 6 months.

Two weeks before the planned administration of the pilot questionnaire, a very brief introductory talk was delivered in school by a Principal Teacher to the class groups of young people who were the prospective participants in the focus group pilot study. At the end of these introductory talks each prospective participant was given a Participant Information Sheet (as shown in Appendix 5) and also Informed Consent Forms, as shown in Appendices 6 and 7. As can be seen, the Participant Information Sheet gave details about the purpose of the research, the tasks and time commitment involved. It also emphasised the right to terminate participation at any point without explanation. Prospective participants were informed verbally about what would happen to the results of the research and assured that the responses of the individual participants would be kept in strict confidentiality. A full explanation of the nature of the research was considered important not only for ethical reasons but also to increase rapport and cooperation with the research process.

The pilot inventory was administered by the writer to two focus groups, each on a separate occasion. On the day of the administration of the pilot inventory the Participant Information Sheet (Appendix 5) and Young Person's Informed Consent Form (Appendix 6), both which had also already been issued to prospective

participants two weeks before, were issued again. The content of the Participant Information Sheet was recapped verbally, including the purpose of the study, the procedure for administration, and the right of participants to withdraw consent at any time without explanation. The pilot questionnaire was then administered with all consenting participants. A Focus Group Question Sheet, as shown in Appendix 8, was used with each of the two focus groups. It was constructed to invite answers to the overall guiding question of: "How good was the inventory at finding out what young people think, feel and do as they prepare to leave school?"

The prompt questions were as follows.

1. Did the questionnaire allow you to communicate what you are thinking, feeling and doing as you prepare to leave school?
2. Which were the best questions?
3. Why?
4. What were the worst questions?
5. Why?
6. Can you think of other questions that should be asked to do this better?

At the start of each focus group, the writer switched on the digital voice recorder and asked the questions in order. The writer facilitated the focus group discussions by ensuring that all participants had an opportunity to contribute, and by maintaining focus on the questions. The focus group discussion sessions lasted approximately twenty minutes each. The focus group recordings were later replayed by the researcher to identify key participant responses to the focus group prompt questions. A simple tally system was also used by the researcher during the focus group to quantify the degree of support for particular responses to the prompt questions.

Results of administering the pilot inventory to the focus groups

Focus Group 1, secondary year 5.

Seven out of seven young people in this focus group indicated that they thought that the inventory was good for its purpose of enabling them to communicate what they

were thinking, feeling and doing as they prepared to leave school. When asked which the best questions were, one participant identified “the whole of Part 1” of the pilot inventory as it “makes you think what you want to do and how you can get to do it”. This was the part of the inventory which used a confidence scale to measure various aspects of positive postsecondary destination self-efficacy. Three other individual participants were each able to identify a specific item statement that they thought was particularly useful in making them think about their own career planning. These were items 30, 35, and 36.

When asked about which were the worst items, two items were identified. The first of these was item 17: “Someone’s ability to have a good career is something they can’t change very much.” This item came from the group of items intended to assess the construct entitled Career Mindset. When asked, seven out seven of the focus group participants expressed concern about this item. However, further discussion indicated that the item was in fact understood by everyone in the focus group, but as one participant said “it could be worded in a different way”. Still further discussion generated two suggestions for how the wording could be changed. These were: “They have the power to change the outcome of what they want to do” and “Someone’s ability to have a good career can be changed”. This evidence confirmed that the participants actually understood the content of item very well and that their objections were instead about the fact that the item content was presented in a pessimistic format: that career ability cannot be changed. Still further corroboration of this interpretation was found in the fact that two of the most vociferous participants in this discussion responded to the item with scores of 10 and 11 respectively, which confirmed their strong disagreement with the content of the negatively worded, fixed mindset statement. It was clear, therefore, that this item was in fact performing its planned function very well in representing the negative pole of career mindset construct in a way that was well understood, and that some participants were using the scale provided to register their disagreement with it.

The second item statement which attracted negative attention from Focus Group 1 was item 48: “Everyone has a certain ability to have a good career, and it is something that they can’t do much about”. It is significant that this item statement also came from the group of items intended to assess the construct entitled Career

Mindset. When asked, three out of seven focus group participants expressed concern about this item. After further discussion about the idea of different individuals may have different mindsets with regard to how they see their ability to have a good career, seven out of seven participants indicated that they understood the concept. However, still further discussion generated two suggestions for how the wording of item 48 could be improved. These were "People have a natural ability to have a good career" and "Everyone has a natural ability which will influence their career and it is something that cannot be altered".

Focus Group 2, secondary year 6.

Six out of six young people in this focus group indicated that they thought that the inventory was good for its purpose of enabling them to communicate what they were thinking, feeling and doing as they prepared to leave school. In response to the facilitator asking which item statements were the best, three out of six participants spoke positively about items that asked about the sources of career support (items 14, 16, 21, 45, 46). Two individual participants said these item statements "boosted their confidence" about their career. Another participant said they liked item 14 in particular (I know an adult in school who will be there for me when I need to talk about my career) because "I now realise that there are people to help in school and I have chosen not to do anything about it."

When asked about which were the worst item statements only one was identified. Significantly, this was again item 48: "Everyone has a certain ability to have a good career, and it is something that they can't do much about." As noted above, this item came from the group of item statements intended to assess the construct entitled Career Mindset. When the focus group was asked, six out six of the focus group participants expressed concern about this item. Further discussion indicated that participants did indeed have concerns about the complex wording of that item. When asked for suggestions about how to reword this item one participant said pointedly that there was a "need to be blunt". Another participant said that there was a need to "keep it very simple". Further discussion generated two suggestions for how the wording of statement 48 could be improved. These were "Everyone has the ability to do their dream job" and "Not everyone has a good ability to have a good career" One

individual said that “a lot depends on upbringing”, which seemed to highlight a perception on the part of that participant that responses were personal to the individual.

Summative analysis of the focus group data

It can be seen from the analysis of the data from the focus groups that the participants in Focus Groups 1 and 2 gave unanimously positive feedback about the overall capacity of the inventory to enable participants to give information on what they are thinking, feeling and doing as they prepare to leave school. The concern expressed by Focus Group 1 about item statement 17 was resolved through the process of focus group discussion to a concern that its wording was based on the negative pole of the underlying construct. This articulated the pessimistic view that the ability to have a good career was fixed rather than something which can be improved. Therefore after considerable reflection on the part of the writer it was decided to retain the original format of this item statement based on the reasoning that participants can use the response scale to disagree with it. It could be argued that the fact that the item statement produced such a strong response in some of the focus group participants was evidence that it was actually serving its intended purpose very well.

However, it is particularly striking that both focus groups expressed concern about one item in particular, which was item 48 “Everyone has a certain ability to have a good career, and it is something they can’t do much about.” This was interpreted as evidence that the phrasing of item 48 was problematic. Therefore, in trying to combine and reconcile the contributions from Focus Group 1 and Focus Group 2, the following wording was adopted for item 48 in the finalised form of the inventory for use in the main study: “My natural ability to have a good career is something that I can’t alter”. This captured the advice on simplicity and directness by using several of the actual words supplied by the focus group participants. It also took account of the focus group feedback, that the construct was specific to the context of the individual and so sought to elicit a specific response based on each individual participant’s view of themselves. Therefore, the results of the participant feedback from the focus

groups were used to modify item 47 of the pilot inventory and so produce the final inventory for the main study, which is shown in its final form in Appendix 9.

Administration of the pre-empirical inventory in the main study

As noted above, the aspiration in selecting the research sample of participant schools was to replicate as far as possible the SIMD profile found in the national population as a whole. However, it became clear that this was not possible within the constraints of the high school population, as shown in Table 4. As can be seen from Table 4, apart from atypical school 1, every school in the research area and also in the wider host local authority had more than 15% of its catchment living in the lowest 15% of SIMD post codes. Therefore, it was acknowledged to be logically impossible to achieve a sample of participants with a similar deprivation profile by combining schools drawn from the research area. Consequently, schools 2, 3, 4, 6, 8, and 9 were selected in which to recruit a target of 1000 participants from the final two year groups, secondary year 5 and secondary year 6.

Procedure for administration of the inventory in the main study.

The questionnaire was administered by the writer to group assemblies in each of the six participating schools identified in Table 4. Each participating school received two main visits; one for secondary year 5 and one for secondary year 6, in each of the six participating schools. A further visit was then made to each school to give a second opportunity to anyone who wished to participate but was absent or unable on the previous occasions. Two weeks before the planned administration visits by the writer, a brief introductory talk was delivered in school by a Deputy Head Teacher to the class groups of young people who were the prospective participants in the main study. The aim of these talks was to explain and discuss the purpose and format of the research and invite participation. At the end of these introductory talks each prospective participant was also given the Participant Information Sheet shown in Appendix 10 and an Informed Consent Form, as shown in Appendices 11 and 12. As can be seen, the Participant Information Sheet gave details about the purpose of the research, the tasks, and time commitment involved. It also emphasised the right to terminate participation at any point without explanation. Prospective participants

were informed verbally about what would happen to the results of the research and assured that the responses of the participants would be kept in strict confidentiality. A full explanation of the nature of the research was considered important not only for ethical reasons but also to increase rapport and cooperation within the research process.

On the day of administration visits, the groups were assembled by the writer in collaboration with the Deputy Head Teacher in each school. The main study inventory was therefore administered to large groups of participants. These consisted of all young people in the relevant year groups who were in attendance on the day in question and whose parents had signed permission forms. The Participant Information Sheet and Young Person's Informed Consent Form, both of which had been issued to prospective participants two weeks before, were issued again. The content of the Participant Information Sheet was recapped verbally including the purposes of the study, the procedure for administration and the right of participants to withdraw consent at any time without explanation.

The responses of participants to the inventory items were entered into the Statistical Package for the Social Sciences (SPSS). In order to protect the confidentiality of students, entries were identified only by means of a unique participant number, rather than by the name of the participant. This enabled links to be made in the data collection process between participant inventory responses and SIMD post code lookup data on an anonymous basis. The final result of this process was a data set in SPSS, which linked inventory responses to the SIMD ranking of the participants, but which also protected individual participant confidentiality by not storing individual identities.

Participants

A total of 1102 questionnaires were completed by young people from secondary year 5 and secondary year 6 in the six participating schools shown in Table 4. Fifty-eight of these questionnaires were rejected because they had large sections of the questionnaire left incomplete. A small number of those fifty-eight participants had answered only a few questions. A large number had missed out a whole page of

seven or eight items, probably by turning two pages at once. A very small number of those fifty-eight participants had left more than three questions unanswered spread across the questionnaire. Therefore the criterion for inclusion in the SPSS data set was that no more than three questions were left unanswered. This resulted in 1044, questionnaires, including 573 (54.9%) males and 471 (45.1%) females. A more detailed breakdown of the sample size in each year group in each of the six participant schools is shown in Table 4. This shows that from a total population of 975 young people in secondary year 5 in the six participating schools, a total of 622 usable questionnaires were obtained, which represented 64% of the total population. From a total population of 741 young people in secondary year 6 in the six participating schools, a total of 422 usable questionnaires were obtained, which represented 57% of the total population. The age of the participants in secondary year 5 ranged from 16 years 0 months to 18 years 2 months, with a mean of 16 years 4 months (SD=3.627). The participants in secondary year 6 ranged from 16 years 2 months to 19 years 1 month, with a mean of 17 years 1 month (SD=5.272). The greater number of males in the sample was due to the fact that some potential female enrolments in the participating schools chose to enrol in School 5, which was an all-female school. This was a pervasive effect not only in the immediate research context but also in the whole local authority area beyond.

The 1044 questionnaires had the following pattern of missing values remaining in this sample. Three completed inventories had three missing values, 20 had two missing values, and 72 had a single missing value. The Statistical Package for the Social Sciences (SPSS) offers three basic approaches to this problem: (1) exclude cases list-wise, which is essentially to adopt the extreme position in which even cases with one missing value are completely excluded; (2) exclude cases pairwise when computing correlation matrices; (3) substitute missing values with the relevant series mean. The third option of substituting missing values with the series mean was adopted. This choice was based on the rationale that when participants omitted large sections of the questionnaire, this occurred by error on a random basis hence fulfilling the assumption of Missing Completely at Random (MCAR). However, the isolated omissions could not be assumed to be random, as they could be chosen omissions, and therefore should be substituted with the relevant series mean.

Factor Analysis

Factor analysis of the 1044 questionnaires was used to statistically test the accuracy of the proposed logical clustering of three distinct groups of social cognitive constructs as proposed in the literature review. It will be recalled that these three proposed construct groups were as shown in Table 5.

Table 5. Showing the three pre-empirical construct sub-groups

Construct sub-group	Constituent constructs
1. Positive destination self-efficacy.	• Positive destination self-efficacy.
2. The four generic sources of learning experiences.	• Past performance; • Vicarious experience; • Social persuasion; • Emotional arousal.
3. The eight enabling social cognitive constructs.	• Career outcome expectations; • Setting career goals; • Performing career development tasks; • Contextual career supports and barriers; • Career optimism and pessimism; • Career attributions; • Career mindset; • Career scaffolding attachments.

The literature review clearly identified these three construct groups as theoretically distinct. Therefore, it was considered important that the items from the three distinct groups were factor analysed separately. Indeed, it will be recalled that the positive destination self-efficacy construct employed an entirely different scale of measurement, which assessed perceived confidence rather than agreement. However in order to empirically test this view, all fifty items were initially factor analysed together using a range of different extraction and rotation methods. However, as was anticipated from the findings of the literature review, it was not possible to find a methodology which produced a simple, interpretable factor structure for fifty items when factor analysed together. Therefore, in accordance with prior planning, a separate factor analysis was carried out on each of the three distinct construct sub-groups shown in Table 5.

Factorability was checked for all three construct sub-groups using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity. The KMO is a test of the amount of variance within the data that could be explained by

factors, and was calculated for each item in each factor analysis. Brace, Kemp and Snelgar (2012) note that "a KMO value of 0.5 is poor; 0.6 is acceptable; a value closer to 1 is better" (p. 368). Tabachnick and Fidell (2014) expressed a similar opinion that "values of 0.6 and above were required for good factorability (p. 668). The average KMO values were 0.889 for the positive destination self-efficacy items, 0.754 for the sources of learning experience items, and 0.884 for the enabling social cognitive items. Furthermore, the smallest individual items had KMO values of 0.863, 0.683, and 0.708, with regard to the positive destination self-efficacy, the sources of learning experience, and the enabling social cognitive items respectively. This, therefore, indicated good factorability in all cases.

Bartlett's Test of Sphericity investigates the hypothesis that the correlation matrix is an identity matrix. This hypothesis is that all diagonal elements are 1 and all off-diagonal elements are 0, implying that all of the variables are uncorrelated. Bartlett's Test results were $\chi^2(15df) = 3469.82$, $p<.001$, with regard to the positive destination self-efficacy items; $\chi^2(28df) = 1268.46$, $p<.001$, with regard to the source of learning experience items; and $\chi^2(630df) = 9809.31$, $p<.001$, with regard to the enabling social cognitive construct items. These Bartlett's Test values were therefore all statistically significant at the $p < .001$ level. This indicated it was appropriate to reject the null hypothesis and conclude that there are correlations in the data set for each of the three distinct groups of items that are appropriate for factor analysis.

Therefore both KMO and Bartlett's test indicated that factorability was good for each of the three sub-groups of items.

A wide range of different ways of conducting factor analysis on the data was considered. The aim of this was to identify a combination of extraction and rotation methods which offered a simple, robust solution that was also coherent in terms of the theoretical model of constructs being tested. Several different combinations of extraction and rotation methods produced broadly similar results. However, a Principal Components Analysis (PCA) extraction, combined with an orthogonal equamax rotation, was chosen because it provided a particularly simple solution, with high loadings on the identified factors within all three item sub-groups.

Therefore, a PCA with orthogonal equamax rotation was carried for each of the three item sub-groups in turn using SPSS.

The extraction was carried out based on Eigenvalues greater than one with regard to the items from the positive destination self-efficacy sub-group, and also the Enabling Social Cognitive Construct sub-group. This resulted in the simple, interpretable structures as shown in Tables 6 and 8 respectively. Extraction based on Eigenvalues greater than one did not result in a simple, interpretable structure for items from the sources of learning experiences sub-group. However, extraction using a fixed number of four factors did result in a simple, interpretable structure in the case of the items from this sub group, as shown in Table 7.

Table 6. Showing the results of PCA extraction and equamax rotation with regard to the positive destination self-efficacy items

Component No.	**Component Name, Eigenvalue, Percentage of Variance, Cronbach's Alpha.**	**Item**	**Pre-Empirical Donor Construct**	**Loading**
1.	**Component name:** Positive Destination Self-Efficacy **Eigenvalue:** 3.92 **Percentage of variance:** 65.36 **Cronbach's Alpha:** .88	I can get into something good after school	Positive destination self-efficacy	+0.879
		I can continue my education or get a job after school.	Positive destination self-efficacy	+0.864
		I can get into employment, education or training after school	Positive destination self-efficacy	+0.839

Table 7. Showing the results of PCA extraction and equamax rotation with regard to the sources of learning experience items

Component No.	Component Name, Eigenvalue, Percentage of Variance, Cronbach's Alpha.	Item	Pre-Empirical Donor Construct	Loading
1.	**Component name:** Career Learning Experience: Social Persuasion **Eigenvalue:** 2.65 **Percentage of variance:** 33.12 **Cronbach's Alpha:** .67	I have someone who really believes in my ability to have a successful career.	Career learning Experience: social persuasion	+0.817
		I know someone I trust who tries to persuade me that I can be successful in my career after school.	Career learning Experience: social persuasion	+0.758
2.	**Component Name:** Career Learning Experience: Vicarious Experience **Eigenvalue:** 1.19 **Percentage of variance:** 14.35 **Cronbach's Alpha:** .62	I know someone who has been successful in going to college or university after school.	Career learning Experience: vicarious experience	+0.846
		I know someone who has been successful in a job.	Career learning Experience: vicarious experience	+0.825
3.	**Component Name:** Career Learning Experience: Emotional Arousal **Eigenvalue:** 0.99 **Percentage of variance:** 12.42 **Cronbach's Alpha:** .74	I am worried that I will not be able to find something to do after school and this makes me feel bad. (Reversed)	Career learning Experience: emotional arousal	-0.913
		I am confident that I will be able to continue my education or get a job after school and this makes me feel good.	Career learning Experience: emotional arousal	+0.607
4.	**Component Name:** Career Learning Experience: Past Performance **Eigenvalue:** 0.88 **Percentage of variance:** 11.05 **Cronbach's Alpha:** Not applicable	I have already experienced some success in a part time job or work experience.	Career learning Experience: past performance	+0.991

Table 8. Showing the results of PCA extraction and equamax rotation with regard to the enabling social cognitive items

Component No.	Component Name, Eigenvalue, Percentage of Variance, Cronbach's Alpha.	Item	Pre-Empirical Donor Construct	Loading
1.	**Component name:** Career Outcome Expectations **Eigenvalue:** 6.92 **Percentage of variance:** 19.22 **Cronbach's Alpha:** .72	A good career will help me get what I want out of life.	Career outcome expectations	+0.695
		My career planning will lead to a satisfying career for me.	Career outcome expectations	+0.659
		If I continue my education after school it will lead to a satisfying career for me.	Career outcome expectations	+0.600
2.	**Component Name:** Setting Career Goals **Eigenvalue:** 3.20 **Percentage of variance:** 8.90 **Cronbach's Alpha:** .70	I am sure about what I want to do for a living.	Setting career goals	+0.705
		I am able to choose a career that will suit me.	Setting career goals	+0.636
		I am unsure about what I want to do after school. (Reversed)	Setting career goals	-0.629
3.	**Component Name:** Performing Career Development Tasks **Eigenvalue:** 1.98 **Percentage of variance:** 5.49 **Cronbach's Alpha:** .71	I have made at least one application for something I would like to do after school	Performing career development tasks	+0.688
		I have written a description of my skills and experiences (sometimes called a CV) that shows my strengths.	Performing career development tasks	+0.675
		I have practiced the skills I will need in an interview.	Performing career development tasks	+0.670
		I have taken up opportunities to get advice on my future career.	Performing career development tasks	+0.542
		I have identified an employer or education provider that could help with my career.	Performing career development tasks	+0.514

Table 8. (Continued) Showing the results of PCA extraction and equamax rotation with regard to the enabling social cognitive items

Component No.	Component Name, Eigenvalue, Percentage of Variance, Cronbach's Alpha.	Item	Pre-Empirical Donor Construct	Loading
4.	**Component Name:** Career Scaffolding Attachments **Eigenvalue:** 1.80 **Percentage of variance:** 5.01 **Cronbach's Alpha:** .70	I have someone I feel close to at home that I can trust to discuss my career.	Career scaffolding attachments	+0.710
		I have someone close to me at home who encourages me to talk about my feelings about my career.	Career scaffolding attachments	+0.688
		I have a friend of the same sex that I can discuss my career with.	Career scaffolding attachments	+0.655
		I have a friend of the opposite sex that I can discuss my career with	Career scaffolding attachments	+0.544
5.	**Component Name:** Career Optimism **Eigenvalue:** 1.06 **Percentage of variance:** 4.47 **Cronbach's Alpha:** .62	I feel there is nothing in the world around me to stop me having a satisfying career.	Contextual career supports and barriers	+604
		Getting a good career is under my control	Career attributions	+0.578
		I'm always optimistic about my future after school.	Career optimism and pessimism	+0.480
		If I take a job after school it will lead to a satisfying career for me.	Career outcome expectations	+0.446
6.	**Component Name:** Career Mindset **Eigenvalue:** 1.16 **Percentage of variance:** 3.22 **Cronbach's Alpha:** .55	Someone's ability to have a good career is something that they can't change very much.	Career mindset	+0.714
		My natural ability to have a good career is something that I can't alter.	Career mindset	+0.640
		Choosing the right career mostly depends on luck.	Career attributions	+0.488
		My ability to have a good career is already decided.	Career mindset	+0.432

Table 8. (Continued) Showing the results of PCA extraction and equamax rotation with regard to the enabling social cognitive items

Component No.	Component Name, Eigenvalue, Percentage of Variance, Cronbach's Alpha.	Item	Pre-Empirical Donor Construct	Loading
7.	**Component Name:** Perceived Career Barriers **Eigenvalue:** 1.126 **Percentage of variance:** 3.13 **Cronbach's Alpha:** .63	I feel that my circumstances are preventing me doing what I want in my career.	Contextual career supports and barriers	+0.684
		I feel that things are getting in the way of my career choices	Contextual career supports and barriers	+0.469
		Having a satisfying career is going to be difficult for me.	Career optimism and pessimism	+0.461
8.	**Component Name:** Career Isolation **Eigenvalue:** 1.00 **Percentage of variance:** 2.79 **Cronbach's Alpha:** .59	I find it difficult to depend on others to get help with my career plans.	Career scaffolding attachments	+0.710
		When it comes to choosing a career I feel I am mostly on my own.	Career scaffolding attachments	+0.628

Therefore, these three separate Principal Components Analyses with equamax rotation carried out on the results from the pre-empirical inventory yielded a total of thirteen components. This number of post-empirical components is the same as the number of pre-empirical constructs which were identified in the literature review and used to construct the provisional inventory. These thirteen factors that emerged from the factor analysis were then examined for theoretical links to the constructs identified in the literature review. The process of identifying and labelling the post-empirical factors that emerged as a result of factor analysis was achieved by examining the derivation of the highest loading items on each of the factors. The pre-empirical construct names from the literature review were retained in the new post-empirical factors only if a preponderance of the highest loading items originated from the relevant donor construct sub-group of items in the pre-empirical inventory.

Of the thirteen post-empirical components, nine were made up entirely of items that originated from a single pre-empirical donor construct. These components were

therefore given the name of the original donor construct unchanged. These nine unchanged components included Positive Destination Self-efficacy, and the four generic sources of Learning Experiences including: Past Performance; Vicarious Experience; Social Persuasion; and Emotional Arousal. Also in this category of components that did not require renaming, were four of the enabling social cognitive constructs including Career Outcome Expectations, Setting Career Goals, Performing Career Development Tasks, and Career Scaffolding Attachments.

Another component, which was number 6 of the enabling social cognitive components, was composed of three items from the pre-empirical Career Mindset construct plus a single item from the pre-empirical Career Attributions construct, which was, "Choosing the right career mostly depends on luck". This additional item was considered to be so closely related to the Career Mindset construct, as described in the literature review, that the original construct name was retained for this post-empirical component. This particular example of merging of component items, based on the empirical findings of the factor analysis, is also highly congruent with the evolutionary process of the underpinning theory, as the development of the implicit self-theories construct, also known as Mindset, by Dweck (2008) was explicitly built on the earlier foundations of attribution theory from work by Weiner (1979).

However, the three remaining components, which were components 5, 7 and 8 of the enabling social cognitive group, did not have such clear correspondence to any pre-empirical construct. Therefore, careful consideration was given to each of these components in turn, in order to re-name them in a way that was most consistent with their constituent items.

Component 5 of the enabling social cognitive group was made up of four items, each from a different pre-empirical donor construct. One of the items was "I'm always optimistic about my future after school," which was drawn from the pre-empirical construct of Optimism and Pessimism. On careful inspection, it was clear that although the three other items in this component were drawn respectively from the Perceptions of Contextual Supports and Barriers, Career Attributions, and Career Outcome Expectations, they were each from the optimistic pole of their respective pre-empirical donor constructs. For example, the item from the Career Outcome

Expectations donor construct was, “If I take a job after school it will lead to a satisfying career for me.” Also, the item from the Perceptions of Contextual Supports and Barriers donor construct was, “I feel that there is nothing in the world around me to stop me having a satisfying career”. Similarly, the item from the Career Attributions was, “Getting a good career is under my control.” Therefore this new four item component was renamed simply: *Career Optimism.* This finding is highly consistent with the finding of Creed, Patton and Bartrum (2002) discussed in the literature review that, at a dispositional level, optimism and pessimism are quite separate and distinct constructs. The participants in the current study have therefore lent support to this finding by Creed et al, (2002) in the pattern of their responses to the pre-empirical inventory, in which they have clearly separated career optimism from career pessimism, as a distinct social cognitive component within the SCCT framework.

Component 7 of the enabling social cognitive group included the items, “I feel that my circumstances are preventing me doing what I want in my career”, and “I feel that things are getting in the way of my career choices”, which were derived from the pre-empirical construct named perceptions of contextual supports and barriers. A third item was derived from the pre-empirical construct of Career Optimism and Pessimism. This item was, “Having a satisfying career is going to be difficult for me”. After reflection this three item post-empirical component was given the new name of *Perceived Career Barriers*.

Component 8 of the enabling social cognitive group was made up of two items, both of which originated in the pre-empirical donor construct of career scaffolding attachments. These items were, “I find it difficult to depend on others to get help with my career plans”, and “When it comes to choosing a career I feel I am mostly on my own”. On inspection it was clear that these items were both tapping a construct related to social isolation in relation to career development. Therefore this new two-item, post-empirical component was given the name *Career Isolation*.

Component 4 of the social cognitive group was composed of the four remaining items from the pre-empirical construct of career scaffolding attachments. Unlike the items which were separated off in the factor analysis, these residual items were all

framed as positive career attachment statements such as, “I have someone I feel close to at home that I can trust to discuss my career”. On inspection these four items were judged to coherently represent the positive aspects of the Career Scaffolding Attachments donor construct. Therefore, it was decided that this residual four-item component should retain the original, pre-empirical construct name of Career Scaffolding Attachments, as already noted above. Again it appears that the participants in the current study have, through their patterns of responding, indicated that a construct originally formulated as a single bipolar construct may in fact be more accurately expressed as two separate and distinct constructs within the SCCT framework; that is Career Scaffolding Attachments on the one hand, and Career Isolation on the other.

The findings from the factor analysis carried out in this current study supported Hypothesis 3. This stated that factor analysis of senior high school student’s inventory responses would provide statistical confirmation of the logical clustering of the thirteen social cognitive career factors from the three distinct groups as identified in the Literature Review. The results provide strong, albeit qualified, support for this prediction.

Therefore, in summary, retaining the original construct name was found to be appropriate for the following post-empirical factors:

- Positive Destination Self-Efficacy;
- Career Learning Experience: Social Persuasion;
- Career Learning Experience: Vicarious Experience;
- Career Learning Experience: Emotional Arousal;
- Career Learning Experience: Past Performance;
- Career Outcome Expectations;
- Setting Career Goals;
- Performing Career Development Tasks;
- Career Mindset.
- Career Scaffolding Attachments;

However, the following post-empirical factors were given a new name by detailed inspection and consideration of the new combination of items they contained:

- Career Optimism
- Perceived Career Barriers
- Career Isolation

The new factor structure was designated the post-empirical factor structure. Therefore, it can be seen that the factors within the new post-empirical factor structure are presented in Tables 6, 7 and 8, in descending order of Eigenvalue and the proportion of variance for which they account, within each sub-group.

Consistency analysis of the scales of the post-empirical factor structure

Following on from the Principal Components Analysis described above, each of the 13 identified components was designated as a separate scale within the new post-empirical inventory. Cronbach's alpha coefficient was then calculated for each scale. This is a measure of internal consistency, which indicates how closely related, or one-dimensional, a set of items are as a group. The item-total correlations were also inspected and individual items were deleted when it was indicated that this would result in an increase in Cronbach's Alpha. On only one occasion was an item removed in this way because that increased scale reliability as measured by Cronbach's Alpha. This item was "Few careers are really interesting" which was removed form Perceived Career Barriers Scale reducing the number of items from four to three.

Two-way analysis of variance (ANOVA)

A two-way ANOVA was designed as follows. Valid post codes were identified for 1036 of the 1044 participants. These postcodes were then used to obtain a SIMD Quintile Rank for each of these participants using the Scottish Government Post Code Lookup web page (Scottish Government, 2013). A quasi-experimental model was then used to establish three populations of participants based on SIMD quintile

ranks (fifths of the population) as shown in Table 9. These populations included participants from: (1) quintile 1 of SIMD (*N*=474); (2) quintiles 2 and 3 (*N*=329); (3) quintile 4 and 5 (*N*=233). These SIMD quintile rank divisions were chosen for two main reasons.

Firstly, in terms of the national population shown in Figure 1, the two most deprived decile ranks, which together comprise the bottom quintile rank, each have a rate of 10% of young people who fail to achieve a positive postsecondary destination, and as such are markedly higher than any of the other deciles. Secondly, it has also been clearly shown that the marked skew of the population of the host local authority towards the two most deprived SIMD decile ranks greatly amplifies this effect. This means that a remarkable 60.5% of the young people who fail to achieve a positive postsecondary destination in the host local authority live in areas designated to be in the two most deprived decile ranks, which are collectively the lowest quintile rank, as shown in Figure 9. This represents a pressing policy priority for the host local authority. Therefore, a comparison of the most deprived quintile rank, or fifth, of the population with the rest of the population was deemed to be particularly salient to one of the stated aims of this research.

On similar logic, a comparison between males and females was also considered highly relevant to the aims of this research, given that males are at significantly greater risk of failing to obtain a positive postsecondary destination, as shown in local and national statistical returns, and presented graphically in Figures 3 & 10. Participants were, therefore, also grouped by males (*N*=569) and females (*N*=467).

Combining these divisions in the two-way ANOVA model shown in Table 9 was thus intended to explore the possible existence of dissimilarities in social cognitive career factors, with regard to SES and gender, which may be linked to the marked observed differences in the success and failure of young people to obtain a positive postsecondary destination. The ultimate aspiration of the research was that such exploration of these stark effects may enable the formulation of more sharply focused and detailed, hypotheses about why failure to achieve a positive destination is so much more frequent in young people who come from areas of high social deprivation, and in males rather than females. In this way, social deprivation as

measured by SIMD, and gender, were in effect assigned to the role of independent variables in a quasi-experimental research design. The scores of the participants on the thirteen post-empirical scales were assigned to the role of dependent variables. This enabled the construction of a two-way unrelated analysis of variance (ANOVA) model as shown in Table 9.

Table 9. Showing structure of two-way unrelated ANOVA model (deprivation x gender)

Deprivation rate	Gender	
	Male	Female
High deprivation (SIMD quintile 1)		
Medium deprivation (SIMD quintiles 2 & 3)		
Low deprivation (SIMD 4 & 5)		

This 2-way ANOVA Deprivation x Gender model was applied in turn to each of the thirteen scales from the three different factor groupings of the post-empirical inventory.

A note on scale directionality.

As a general rule scale scores were calculated and expressed to respect the directionality convention, that the positive pole of each construct was represented by a high scale score. This was achieved by reversing item scores which had produced a negative loading in the factor analysis. Where an item was reversed in the scale calculation this is noted in Tables 7 and 8. It can be seen that only two items were reversed. These were, "I am worried that I will not be able to find something to do after school and this makes me feel bad," from the Career Learning Experience: Emotional Arousal Scale, and, "I am unsure about what I want to do after school," from the Career Goals Scale.

However, there were two exceptions to the directionality convention of representing the positive pole of each construct by a high scale score. These exceptions relate to the Career Barriers Scale and the Career Mindset Scale. In the case of the Career Barriers Scale, in accordance with the negative framing of this construct a higher scale score indicates greater perceptions of career barriers. In the case of the Career

Mindset Scale the positive pole, relating to the growth mindset, is expressed as a lower score. This exception was made in the case of the Career Mindset scale to preserve the logical relationship with the original items in the Career Mindset Scale, which all reflected the negative pole of the construct. This was therefore achieved by leaving all scores in the Career Mindset Scale un-reversed, despite the fact that all four items had negative loadings on the construct. The directionality of the scales is also made clear throughout the presentation and discussion of the results for each scale to ensure ease of interpretation.

The results will now be described for each of the thirteen factors in turn.

The Positive Destination Self-Efficacy Scale

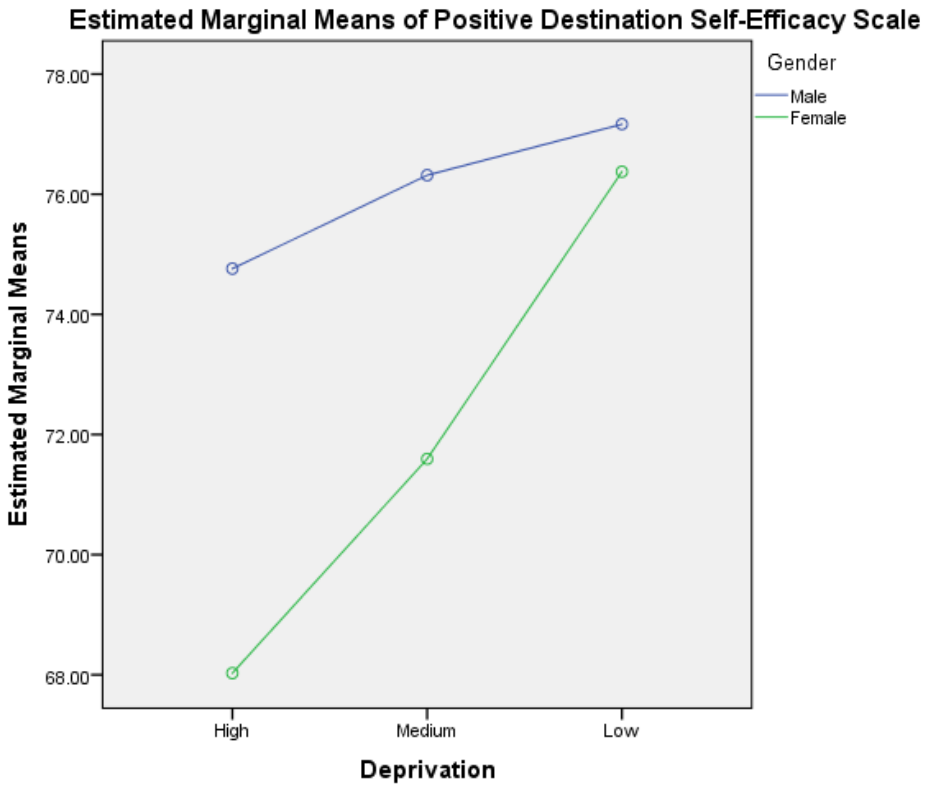

Figure 12. Marginal mean scores on the Positive Destination Self-Efficacy Scale. A higher marginal mean indicates greater positive destination self-efficacy

When a 2-way ANOVA was applied using participant scores on the Positive Destination Self-Efficacy Scale the results obtained were as follows. The main effect for deprivation was statistically significant: F (2, 1036) = 7.173, *p*=.001, which indicated that participants living in areas of higher deprivation reported lower self-efficacy beliefs about obtaining a positive postsecondary destination than those living in areas of lower social deprivation. Employing the Bonferroni post-hoc test, a significant difference was found between the High Deprivation and Low Deprivation conditions (*p*<.001). There were no significant differences between High Deprivation and the Medium Deprivation conditions (*p*=.116), or between the Medium Deprivation and the Low Deprivation conditions (*p*=.279). The main effect of gender was also statistically significant, F (1, 1036) = 12.217, *p*=.000, which indicated that males reported greater self-efficacy beliefs than females. There was no statistically significant interaction between these two factors, F (2, 1036) = 2.123, *p*=.120. These results are displayed in graphical form in Figure 12.

Career Learning Experiences: Past Performance Scale

When a 2-way ANOVA was applied using the scores on the Career Learning Experience: Past Performance Scale the main effect of deprivation was not statistically significant, F (2, 1036) = 1.502, *p*=.223. The main effect of gender was statistically significant, F (1, 1036) = 9.358, *p*=.002, indicating that males reported fewer positive perceptions of having experienced previous success in education / employment than females. There was no statistically significant interaction between these two factors, F (2, 1036) = 2.008, *p*=.135. These results are displayed in graphical form in Figure 13.

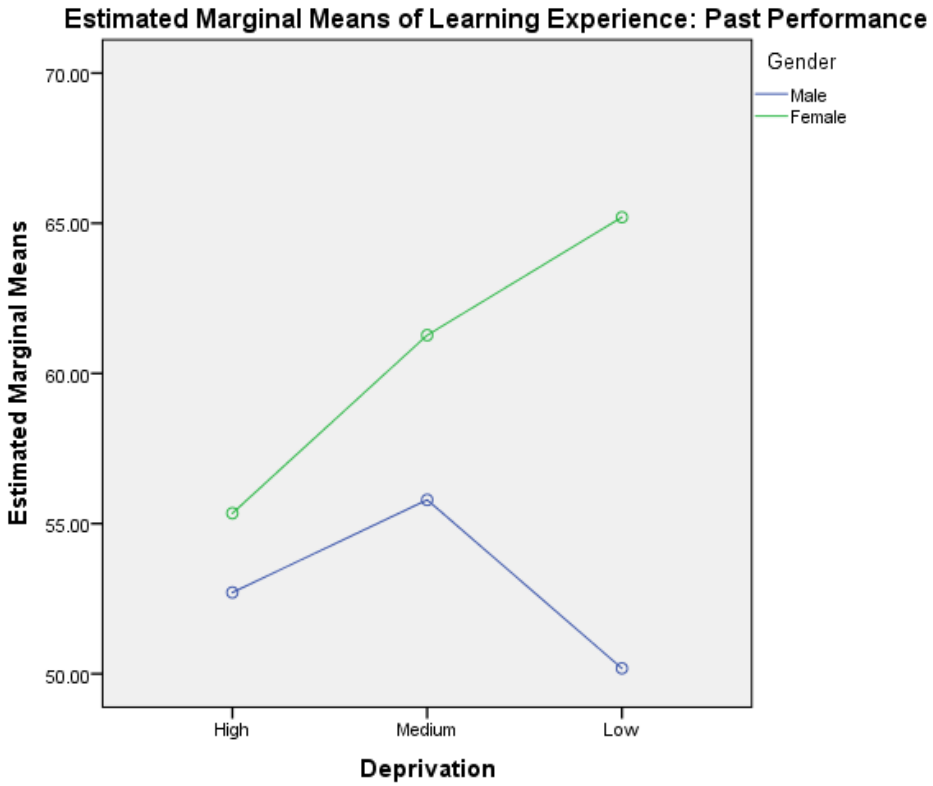

Figure 13. Marginal mean scores on the Career Learning Experience: Past Performance Scale. A higher marginal mean indicates a more positive perception of having experienced previous success in education or employment.

Career Learning Experience: Vicarious Experience Scale

When a 2-way ANOVA was applied using participant scores on the Career Learning Experience: Vicarious Experience Scale the results were as follows. The main effect of deprivation was statistically significant, F (2, 1036) = 10.049, p<.001, indicating that participants living in areas of higher deprivation reported lower vicarious experience of success in employment or education than participants in areas of lower social deprivation. Employing the Bonferroni post-hoc test, a significant difference was found between the High Deprivation and Low Deprivation conditions (p<.001) and between the Medium Deprivation and Low Deprivation conditions (p<.001). There were no significant differences between High Deprivation and the Medium Deprivation condition (p=.840). The main effect of gender was not statistically significant, F (2, 1036) = 2.778, p=.096. There was no statistically significant interaction between these two factors, F (2, 1036) = .324, p=.723. These results are displayed in graphical form in Figure 14.

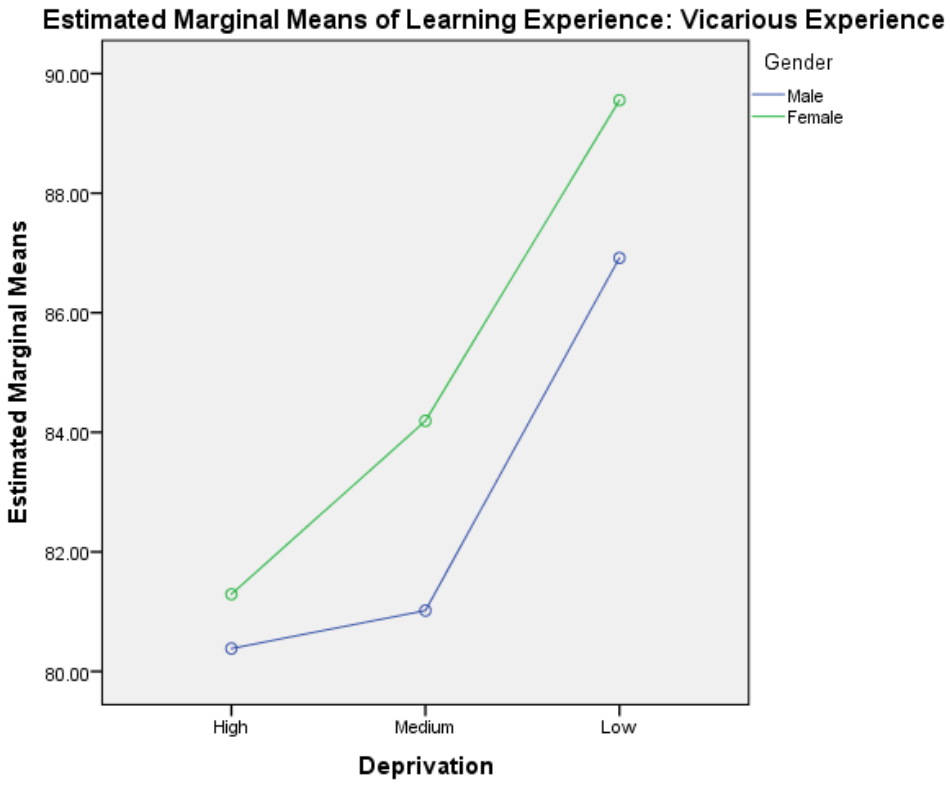

Figure14. Marginal mean scores on the Career Learning Experiences: Vicarious Experience Scale. A higher marginal mean indicates greater knowledge of others who have been successful in employment or education.

Career Learning Experience: Social Persuasion Scale

No statistically significant results were found when a 2-way ANOVA was applied using the scores on the Career Learning Experience: Social Persuasion Scale.

Career Learning Experience: Emotional Arousal Scale

When a 2-way ANOVA was applied using participants results on the Career Learning Experience: Emotional Arousal Scale the results obtained were as follows. The main effect of deprivation was not statistically significant, F (1, 1036) = 2.175, p=.114. The main effect for gender was statistically significant, F (1, 1036) = 29.518, p<.001, indicating that males reported more positive emotional arousal and less negative emotional arousal in relation to the postsecondary transition. There was no statistically significant interaction between these factors, F (2, 1036) = 1.753, p=.174. These results are displayed in graphical form in Figure 15.

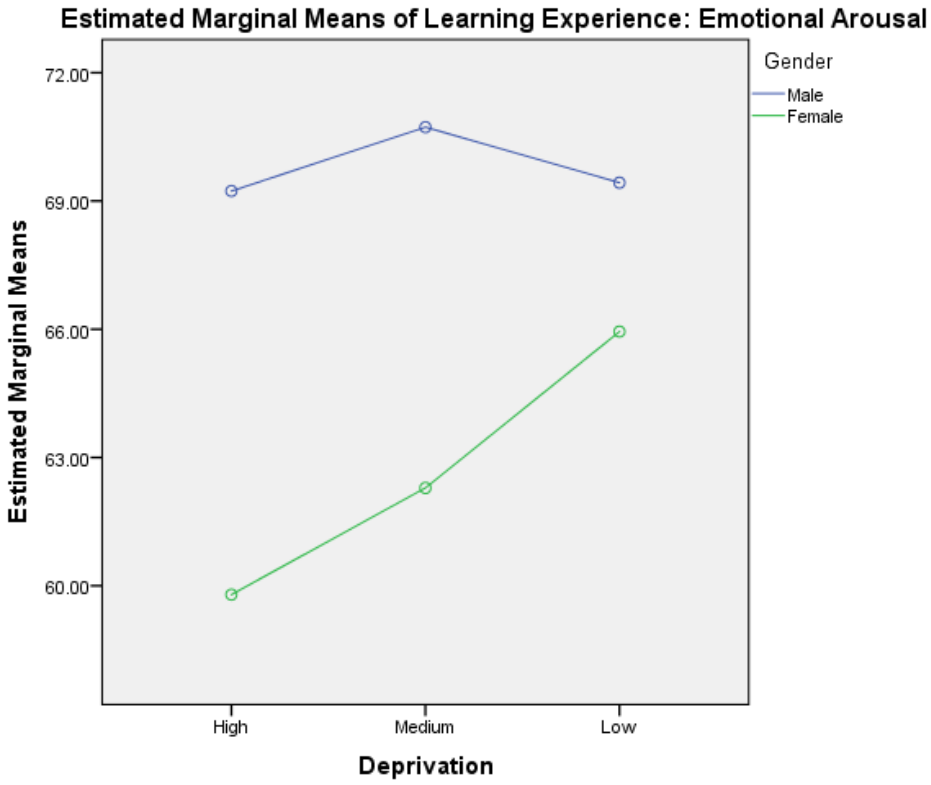

Figure 15. Marginal mean scores on the Career Learning Experience: Emotional Arousal Scale. A higher marginal mean indicates more positive emotional arousal and less negative emotional arousal in relation to the postsecondary transition.

Career Outcome Expectations

No statistically significant results were found when a 2-way ANOVA was applied using the scores on the Career Outcomes Expectations Scale

Setting Career Goals Scale

When a 2-way ANOVA was applied using participant scores on the Setting Career Goals Scale the main effect of deprivation was not statistically significant, F (1, 1036) = 1.466, p=.231. The main effect of gender was statistically significant, F (1, 1036) = 21.312, p<.001, indicating that males reported more positive career goal setting behavior than females. There was no statistically significant interaction between these two factors, F (2, 1036) = 2.667, p=.070. These results are displayed in graphical form in Figure 16.

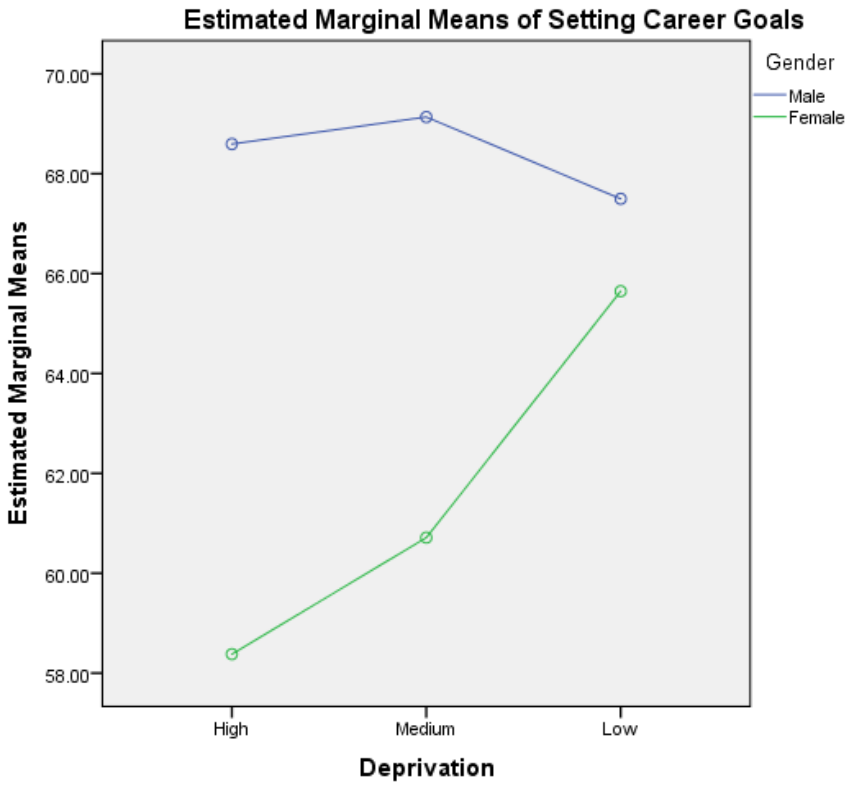

Figure 16. Marginal mean scores on the Setting Career Goals Scale. A higher marginal mean indicates greater perceived ability to set career goals.

Performing Career Development Tasks Scale

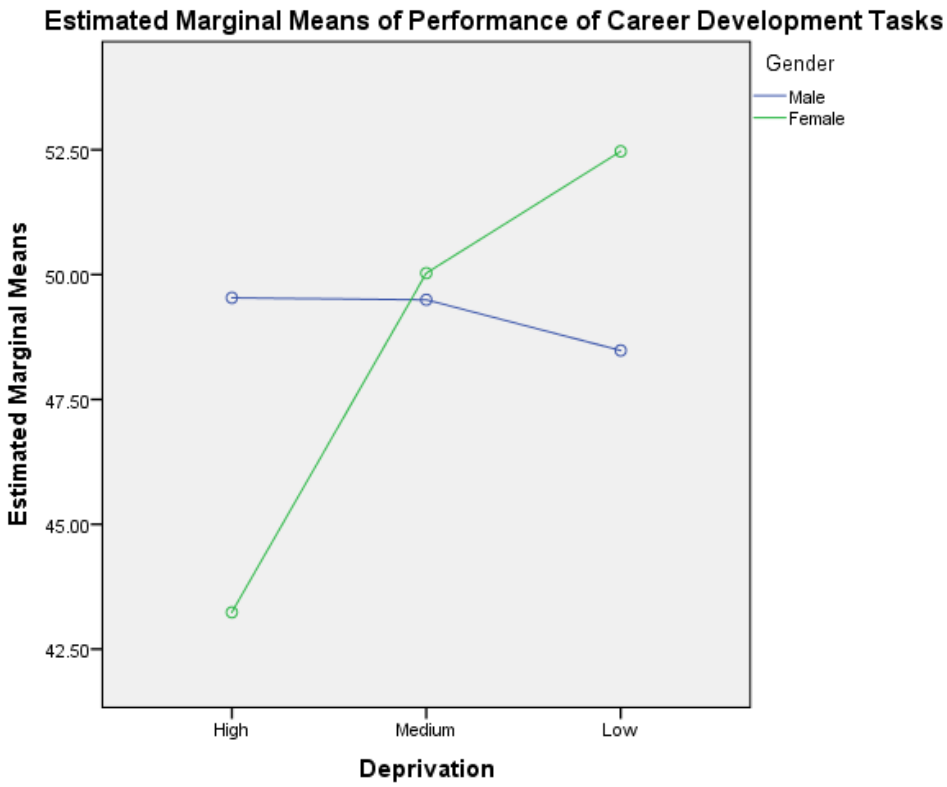

Figure 17. Marginal mean scores on the Performing Career Development Tasks Scale. A higher marginal mean indicates a more positive perception of having performed career development tasks.

When a 2-way ANOVA was applied using participant scores on the Performing Career Development Tasks Scale the main effect of deprivation was statistically significant, F (2, 1036) = 3.317, *p*=.037, indicating that participants living in areas of higher deprivation reported lower performance of career development tasks than participants in areas of lower social deprivation. Employing the Bonferroni post-hoc test, there were no significant differences between High Deprivation and the Low Deprivation conditions (*p*=.147), between High Deprivation and the Medium Deprivation conditions (*p*=.167), or between the Medium Deprivation and the Low Deprivation conditions (*p*=1.000). The main effect of gender was not statistically significant, F (1, 1036) = 0.156, *p*=.693. However, there was a statistically significant interaction between deprivation and gender, F (2, 1036) = 4.497, *p*=.011. This indicates that at higher deprivation males report greater performance of career

development tasks than females, but at lower deprivation females report greater performance of career development tasks than males. These results are displayed in graphical form in Figure 17.

Perceived Career Barriers Scale

When a 2-way ANOVA was applied using participant scores on the Perceived Career Barriers Scale the main effect of deprivation was statistically significant, F (2, 1036) = 7.958, p<.001, indicating that participants living in areas of higher deprivation reported greater perception of career barriers than participants living in areas of lower deprivation. Employing the Bonferroni post-hoc test, significant differences were found between the High Deprivation and Low Deprivation conditions (p<.001) and the Medium Deprivation and Low Deprivation conditions (p=.003). There were no significant differences between the High Deprivation and the Medium Deprivation condition (p=1.00). There was no main effect for gender: F (1, 1036) = 0.074, p=.785. There was no statistically significant interaction between these two factors: F (2, 1036) = .785, p=.456. These results are displayed in graphical form in Figure 18.

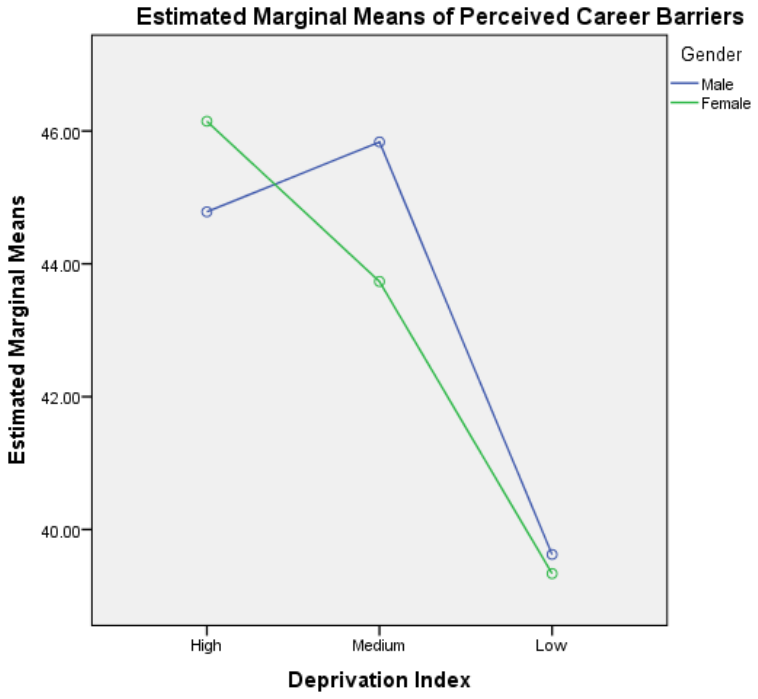

Figure 18. Marginal mean scores on the Perceived Career Barriers Scale. A higher marginal mean indicates a greater perception of career barriers.

Career Optimism Scale

When a 2-way ANOVA was applied using participant scores on the Career Optimism Scale the main effect of deprivation was not statistically significant, F (2, 1036) = 0.076, p=.927. However, the main effect of gender was statistically significant: F (1, 1036) = 41.979, p<.001, indicating that males report greater optimism about their career than females. However, there was also a statistically significant interaction between deprivation and gender, F (2, 1036) = 3.581, p=.028, indicating that at high deprivation and at low deprivation males have higher scores on the Career Optimism Scale than females, while at Medium Deprivation males also show greater scores on the Career Optimism Scale than females but to a much lesser degree. These results are displayed in graphical form in Figure 19.

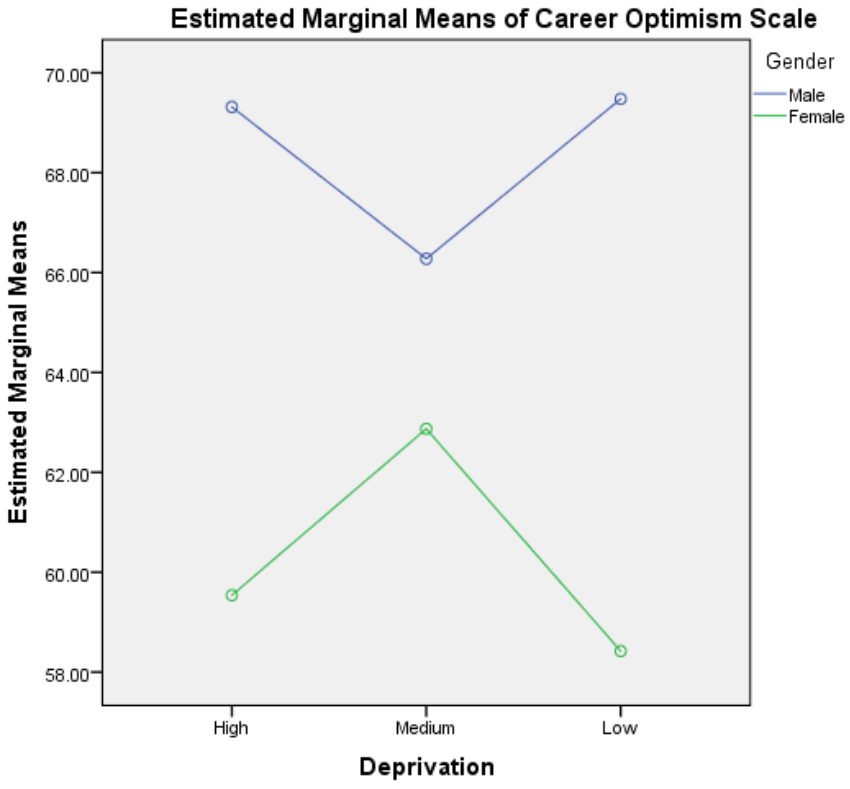

Figure 19. Marginal mean scores on the Career Optimism Scale. A higher marginal mean indicates a more optimistic perception of postsecondary career prospects.

The Career Mindset Scale

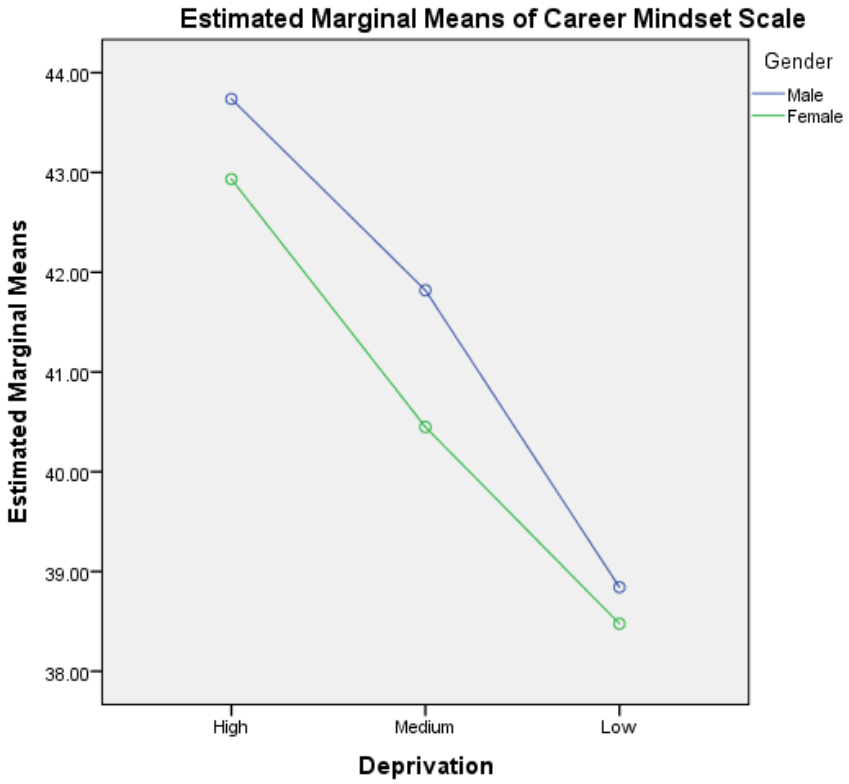

Figure 20. Marginal mean scores on the Career Mindset Scale. A higher marginal mean indicates a more fixed or entity career mindset. A lower marginal mean indicates a more growth or incremental career mindset.

When a 2-way ANOVA was applied using participant scores on the Career Mindset Scale the main effect of deprivation was statistically significant, F (2, 1036) = 5.425, *p*=.005, indicating that participants living in areas of higher deprivation reported a greater tendency for a fixed or entity career mindset than participants living in areas of lower deprivation, who showed a greater tendency towards a growth or incremental mindset. Employing the Bonferroni post-hoc test, there was a significant difference between High Deprivation and the Low Deprivation conditions (*p*=.003). There was no significant difference between High Deprivation and the Medium Deprivation conditions (*p*=.287), or between the Medium Deprivation and the Low Deprivation conditions (*p*=.294). There was no significant main effect for gender: F (2, 1036) = 0.526, *p*=.468. There was no statistically significant interaction between

these two factors: F (2, 1036) = 0.055, *p*=.946. These results are displayed in graphical form in Figure 20.

Career Scaffolding Attachments Scale

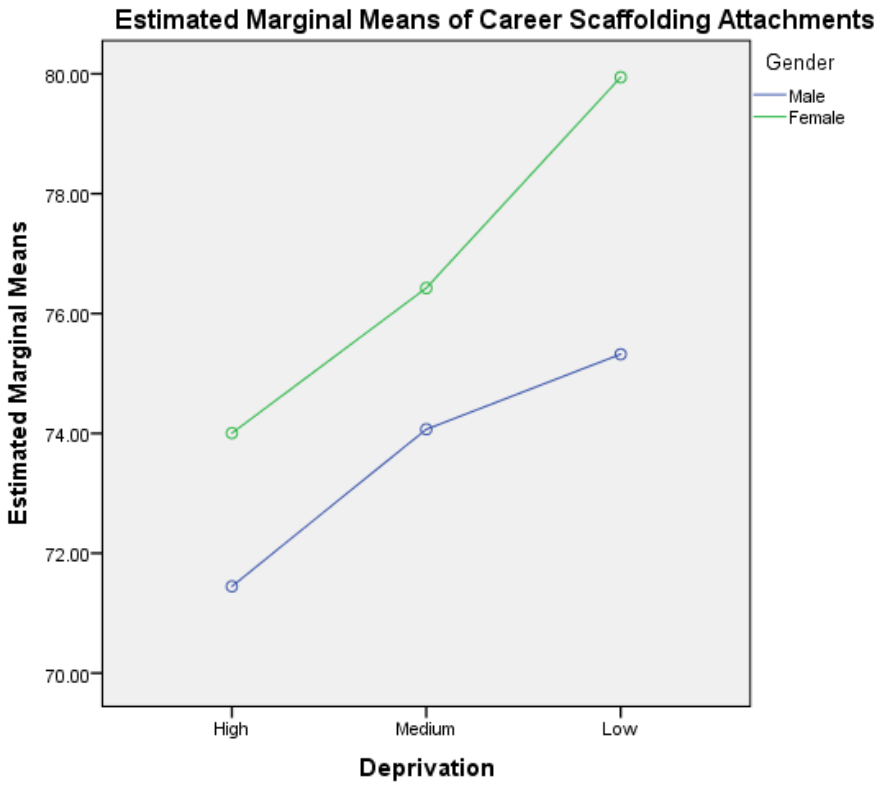

Figure 21. Marginal mean scores on the Career Scaffolding Attachments Scale. A higher marginal mean indicates a greater perception of having career scaffolding attachments.

When a 2-way ANOVA was applied using participant scores on the Career Scaffolding Attachments Scale the main effect of deprivation was statistically significant: F (2, 1036) = 4.581, *p*=.01, indicating that participants living in areas of higher deprivation reported fewer career scaffolding attachments than participants living in areas of lower deprivation. Employing the Bonferroni post-hoc test, there was a significant difference between High Deprivation and the Low Deprivation conditions (*p*=.015). There was no significant difference between High Deprivation and the Medium Deprivation conditions (*p*=.294), or between the Medium Deprivation and the Low Deprivation conditions (*p*=.636). The main effect of gender was also statistically significant: F (1, 1036) = 5.580, *p*=.018, indicating that males reported fewer career scaffolding attachments that females. There was no statistically

significant interaction between these two factors, F (2, 1036) = .243, *p*=.785. These results are displayed in graphical form in Figure 21.

Career Isolation Scale

No statistically significant results were found when a 2-way ANOVA was applied using participant scores on the Career Isolation Scale.

Chapter 4 Discussion and conclusions

This main aim of this chapter is to analyse and evaluate the main empirical findings of the current study in the context of previous research findings. This is organised around the two main overarching themes of the study, including social economic status (SES) and gender. Each of these overarching themes will be considered in turn with regard to their effects on the main social cognitive factors investigated in the study. The chapter will also consider the main limitations of the study including the important and interrelated issues of the validity of the new assessment instrument, and the generalisability of the findings of the current study. Therefore, this will include an evaluation of the progress achieved so far with regard to the development of the new, 38-item, post-empirical Preparing for Postsecondary Indicator (PrePI) in terms of its internal consistency and various important aspects of its external validity. The main findings of the study will then be considered in terms of their implications for practice, policy and future research. Finally, this chapter will summarise the main conclusions of the study in the context of these main findings.

A note on interpreting Table 10 summarising all ANOVA results

All the results from the two-way unrelated ANOVAs of deprivation versus gender carried out on the thirteen social cognitive career factors are summarised in Table 10. The table warrants an introductory explanation, which follows. The column on the extreme left of the table contains the thirteen social cognitive factors of the new post-empirical Preparedness for Postsecondary Inventory (PrePI), and therefore labels all the rows to its right. It can be seen that the six columns to the right divide into two halves, A and B. Half A refers to the main effects of deprivation. Half B refers to the main effects of gender. Half A and half B, each contains three component columns. In both A and B, the first of these component columns identifies whether, or not, a significant main effect was found in the current study for each respective factor. It also identifies the direction of the significant main effect, where one was found. In half A, the convention of expressing the direction of the main effects of deprivation in terms of higher deprivation compared to lower deprivation is consistently adopted. In half B, the convention of expressing the direction of the main effects of gender in terms of males compared to females is consistently adopted.

Table 10. Summary of results of two-way unrelated ANOVA (deprivation x gender) (See page 144 for explanation)

Factor Scale	A. Main effect of deprivation. Direction of main effect is expressed with reference to higher deprivation compared to lower deprivation			B. Main effect of gender. Direction of main effect is expressed with reference to males compared to females. Interactions also noted.		
	Significant main effect? Direction of main effect	**Exploratory status**	**Consistency with previous studies**	**Significant main effect? Direction of main effect**	**Exploratory status**	**Consistency with previous studies**
1. Positive postsecondary destination self-efficacy	Yes, lower at higher deprivation	Direction as hypothesised	Inconsistent with Ali et al. (2005)	Yes, higher in males	Direction not as anticipated	Inconsistent with Chin and Kameoka (2002)
2. Past performance	None			Yes, lower in males	Direction as anticipated	Consistent with Anderson and Betz (2001)
3. Vicarious experience	Yes, lower at higher deprivation	Direction as hypothesised	Inconsistent with Chin and Kameoka (2002)	None		
4. Social persuasion	None			None		
5. Positive emotional arousal	None			Yes, higher in males	Direction not as anticipated	Inconsistent with Anderson and Betz (2001)
6. Career outcome expectations	None			None		
7. Setting career goals	None			Yes, higher in males	Direction not as anticipated	New finding: no previous studies
8. Performing career development tasks	Yes, lower at higher deprivation	Direction as hypothesised	New finding: no previous studies	None/ Interaction		
9. Perception of career barriers	Higher	Direction as hypothesised	Inconsistent with McWhirter et al. (2007)	None		Consistent with McWhirter et al. (2007)
10. Career optimism	None			Yes, higher in males/ Interaction	Direction not as anticipated	Inconsistent with Creed, Patton, & Bartrum (2004)
11. Career mindset	Yes, more fixed at higher deprivation	Direction as hypothesised	New finding: no previous studies	None		
12. Career Scaffolding attachments	Yes, lower at higher deprivation	Direction as hypothesised	New finding: no previous studies	Yes, lower in males	Direction as anticipated	Inconsistent with Germeijs and Verschueren, (2006)
13. Career isolation	None			None		

It can be seen that in both A and B, the second component column describes the exploratory status of the identified main effects found in the current study. In A, the exploratory status of the main effects of deprivation found in the current study are labelled "Direction as hypothesised" when they confirmed the main formal hypotheses made in the current study about the effects of deprivation. The statement of these formal hypotheses about the effect of deprivation on social cognitive factors can be found on page 94 of the methods and results chapter. No antonym of this term was required as all the significant main effects of deprivation found in the current study were established to be in the direction hypothesised. In B, the exploratory status of the main effects of gender found in the current study are labelled "Direction as anticipated", when they conformed to the specific gender effects anticipated in the methods and results chapter. This lesser term was used in recognition of the fact that no formal hypotheses were made with regard to gender in the methods and results chapter of the thesis. When the main effects of gender in the current study were found to be in the opposite direction to the specific gender effects anticipated in the methods and results chapter, they are labelled "Direction not as anticipated." As can be seen from Table 10 this was the case for four of the six significant main effects found for gender.

It can be seen that in both A and B, the third component column is headed as "Consistency with previous studies." This column identifies the existence of preceding studies in the literature, where they were found to occur, which had previously measured the specific respective effects of either deprivation or gender on the relevant social cognitive factors. This is reflected in the table by naming the authors and publication dates of the relevant studies analysed and evaluated in the literature review. This column also identifies whether, or not, the main effect found in the current study was in agreement with the relevant findings of the named study. On the occasions when the main effect found in the current study was in agreement with the finding of the relevant previous named study, then it is identified as "Consistent with" the named study. Alternatively, on the occasions when the main effect found in the current study was not in agreement with the findings of the relevant previous named study, then it is labelled as "Inconsistent with" the named study. On all occasions when this latter term was used in Table 10, it was because the previous named study had measured the relevant factor, of either deprivation or

gender, and confirmed the null hypothesis with regard to its effects on that particular social cognitive factor: that is the previous named study had found no effect. This detailed naming of previous studies in Table 10 enables the reader to refer back to the fuller analysis and evaluation of the relevant previous named studies, described in the literature review, when required.

It should also be noted that half B of Table 10 also identifies the two interaction effects found between deprivation and gender.

The effect of SES of social cognitive career factors

Statistical analysis carried out in the current study has confirmed that a significantly greater proportion of high school students, within both the national and local populations, who lived in areas of higher deprivation failed to obtain a positive postsecondary destination in employment education or training when they left school, in comparison with young people who lived in areas of greater social advantage. These findings therefore support Hypothesis 1 made on page 94 in the methods and results chapter, which stated that high school students who live in the more deprived areas of both the national and local research populations will be less likely to enter a positive destination on leaving school, than those from less deprived areas. The results also showed significant differences in a range of social cognitive career factors between young people who lived in areas of higher social deprivation compared to young people who lived in more socially advantaged areas, as summarised in Table 10. These findings will now be examined in greater detail in terms of how they relate to previous research findings. These results will also be discussed in order to explore their potential to contribute to an explanation of why young people who lived in areas of lower social economic status (SES) were so overrepresented in the population of young people who failed to obtain a positive postsecondary destination in employment, education or training.

SES and postsecondary destination self-efficacy beliefs.

It can be seen from the summary of results in Table 10 that the findings show that participants who lived in areas of higher deprivation reported significantly lower positive postsecondary destination self-efficacy beliefs than participants who lived in more socioeconomically advantaged areas. This means that senior high school students from areas of high deprivation were less confident that they could get into employment, education or training after they leave school. This finding therefore supported Hypothesis 4, made on page 94 in the methods and results chapter, which stated that participants from lower socioeconomic backgrounds will report lower levels of self-efficacy beliefs that they can obtain a positive postsecondary destination in education, employment or training, than those from higher socioeconomic backgrounds. This finding of the current study would appear to be wholly original, as no precedent could be found in the literature of a study which measured high school student's self-efficacy beliefs about their ability to obtain a positive postsecondary destination in employment education and training.

This finding that young people who lived in more deprived areas were less confident that they could obtain a positive postsecondary destination was particularly important, as this could potentially contribute to an explanation of the fact that success in actually obtaining a positive postsecondary destination decreases with increasing levels of social deprivation in both the national and local population of school leavers.

However, it is instructive to compare this finding with that of Ali, McWhirter, and Chronister (2005), already analysed in the literature review. This work showed that, although vocational/educational self-efficacy beliefs were significantly correlated with the SES in high school students in the USA, they found that SES did not account for any significant, unique variance in vocational/educational self-efficacy beliefs in a hierarchical regression analysis. The current study therefore showed a much clearer relationship between career relevant self-efficacy beliefs and SES in senior high school students. It could be that the stronger relationship found in the

current study is attributable in part to the fact that a multidimensional, and therefore more theoretically robust, measure of SES was used. This is in stark contrast to the uni-dimensional measure of SES used by Ali, et al. (2005), which has attracted independent criticism for relying solely on parent's employment and education status (Liu, Ali, Solek, Hopps, & Pickett, 2004).

Therefore, it may be argued that the difference observed in self-efficacy beliefs about achieving a positive postsecondary destination reported by young people living in areas of different social economic status, could be a contributory factor to the substantial discrepancies in the numbers of young people achieving positive postsecondary destinations at different levels of SES, which were found within the local and national statistical returns. This possibility is also highly consistent with previous research carried out within a generic social cognitive framework, as analysed and evaluated in the literature review. For example, Bandura (1997, 1989), reported that people who had greater self-efficacy belief that they could execute a particular behaviour, were also more likely to show greater personal agency in that specific domain of functioning. Previous research has indicated that greater self-efficacy beliefs can also predict an individual's choice of behaviours and environments, as well as the amount of effort and persistence they will expend, (Bandura, 1997, 1989). Crucially, it has also been previously shown that self-efficacy beliefs can predict the emotional responses that a person will make in the face of set-backs and difficulties, (Bandura, 1997, 1989).

The possibility that the lower postsecondary destination self-efficacy beliefs reported by young people living in areas of greater social deprivation may be a contributory factor to their lower rates of success in achieving a positive destinations is also highly consistent with the relevant tenets of Social Cognitive Career Theory (SCCT) as postulated by Lent, Brown, and Hackett (1994, 2000), and evaluated in the literature review. Viewed from the perspective of this theoretical framework, this particular finding of the current study does support the possibility that individuals who have higher self-efficacy beliefs that they can achieve a positive postsecondary destination are more likely to form interests in specific postsecondary destinations in employment, education and training; and then go on to set specific and challenging career activity goals. These challenging career activity goals could in turn result in

individuals exposing themselves to experiences which create the possibility of encouraging reinforcements, and thus establish an iterative, constructive feedback loop with positive postsecondary destination self-efficacy beliefs. It should be noted, however, that no difference was actually found between the reported setting of career goals by participants from higher and lower SES in the current study.

Taking an essential overview of this evidence, the clear finding of the current study that young people from areas of higher social deprivation reported lower levels of positive postsecondary destination self-efficacy beliefs, would appear to have implications for educational policy and practice. For example, it could be that positive destination self-efficacy belief is worthy of more detailed consideration as a prospective target for educational interventions to improve positive postsecondary destinations for young people living in areas of higher social deprivation. This will be discussed in more detail and in the context of other findings of the current study later in this chapter.

SES and career relevant learning experiences.

It can be seen from the summary of results in Table 10 that participants in the current study who lived in areas of higher deprivation reported significantly lower scores for vicarious experience than participants who lived in more socio-economically advantaged areas. This indicates that young people living in areas with higher deprivation were less likely to report that they knew someone who they perceived as having been successful in a job or in education after leaving school. However, it should be noted that this finding of the current study was inconsistent with the previous finding of Chin and Kameoka (2002), who reported that no difference existed in career-relevant vicarious experience with regard to SES in high school students in the USA. Although, as already analysed in the literature review, the way in which these workers measured SES was by using perceptions of neighbourhood resources and safety, which was identified as an inappropriate measure of SES. Furthermore, the measure used for vicarious experience by Chin and Kameoka (2002), was participants' self-report about their parents' highest educational qualification. This is clearly inconsistent with the underpinning social cognitive theory, which the study explicitly purports to test. Accordingly, it is possible that the

finding of the current study, that participants from areas of higher deprivation have less vicarious experience of postsecondary success in employment and education, is in part attributable to the more appropriate, and theoretically consistent, measurement instruments used for both SES and vicarious experience. Consequently, it may be argued that the finding of the current study is more robust and reliable than the previous contradictory finding of Chin and Kameoka (2002).

Hence, when this result relating vicarious experience of career success is considered together with the corresponding differences found in postsecondary destination self-efficacy beliefs discussed above, it could be contended that these results are highly congruent with the core findings of social cognitive theory as outlined by Bandura (1986). These were that domain-relevant, vicarious experience is likely to be associated with increased domain-specific self-efficacy belief, and together these factors are likely to be associated with greater performance of the target behaviours. In consequence, it is possible to argue that participants living in areas of greater deprivation have less exposure to positive role models demonstrating postsecondary success behaviours, and as a result have less positive postsecondary self-efficacy beliefs, and so achieve positive postsecondary destination in lesser numbers.

In summary, the clear finding of the current study that young people from areas of higher social deprivation reported lower levels vicarious experience of success would appear to have implications for educational policy and practice. For example, it could be that enhancing the opportunities that young people have for direct contact with role models who have already achieved a measure of career success could be adopted as interventions to improve positive postsecondary destinations for young people living in areas of higher social deprivation. This will be discussed in more detail and in the context of other findings of the current study later in this chapter.

However, taking an overview of the results from all four learning sources, only partial support is provided for Hypothesis 5, which stated that participants from lower socioeconomic backgrounds will report lower exposure to all the learning experiences, which are putative sources of self-efficacy belief and outcome expectations, including: past performance; vicarious experience; social persuasion; and emotional arousal. It should be acknowledged therefore that, of the four

hypothesised learning sources, only vicarious experience has been shown to be reported as significantly lower by participants who lived in areas of higher deprivation.

SES and performing career development tasks.

It can be seen from the summary of results in table 10 that participants in the current study who lived in areas of higher deprivation reported significantly less performance of career development tasks than participants who lived in more socioeconomically advantaged areas. These career development tasks included taking up opportunities for career advice, making an application for a postsecondary destination, writing a Curriculum Vitae (CV), and practicing interview skills. Therefore this finding supports Hypothesis 8, made on page 94 in the methods and results section, which stated that participants from lower socioeconomic backgrounds will report lower performance of career development tasks. This is an important finding by the current study as it could potentially contribute to an explanation of why success in actually obtaining a positive postsecondary destination decreases with increasing levels of social deprivation in the whole population of school leavers.

It is important to note that this finding of the current study with regard to performing career development tasks would appear to be wholly original, as no precedent could be found in the literature of a study which investigated the impact of SES on the performance of these fundamental career development tasks. The fact that it has been shown for the first time in the current study that young people from less advantaged backgrounds reported less experience of performing these fundamental development tasks has clear implications for educational policy and practice. This is particularly true as the simple logical link between actually performing these fundamental career development tasks and the subsequent achievement of a positive postsecondary destination would seem at an intuitive level to be so close and clear. These implications for future educational policy, practice and research will be discussed in more detail and in the context of other findings of the current study later in this chapter.

Indeed the cogency of this intuitive logical link has been evidenced by the study by Rogers and Creed (2011), as discussed in the literature review. These researchers operationalised the construct of performance of career development tasks using a measure of career exploration and a measure of career planning. Rogers and Creed (2011) showed that both of these measures were positively associated with a career decision making self-efficacy. Therefore, these findings by Rogers and Creed (2011) are highly congruent with the findings of the current study to the extent that participants who lived in areas of higher deprivation in the current study reported less performance of career development tasks and also less positive destination self-efficacy than participants who lived in areas of greater social advantage. Consequently, taking an overview of these previous findings of Rogers and Creed (2011) together with the results from the current study, would seem to indicate the possibility that a reinforcement effect may be occurring between self-efficacy beliefs and the performance of career development tasks. Although, this inference must be accompanied by the caveat that Rogers and Creed (2011) measured career decision-making self-efficacy as opposed to positive postsecondary destination self-efficacy, which was measured in the current study.

In summary, interpreting the findings of Rogers and Creed (2011) together with the congruent findings of the current study lends some evidence in support of the SCCT hypothesis, discussed in the literature review: that increased self-efficacy beliefs will result in greater performance of career development tasks. So, by extension of this argument, the findings in the current study that positive destination self-efficacy *and* performance of career development tasks are both reported as significantly lower by participants who lived in areas of higher social deprivation, compared with participants who lived in more socially advantaged areas, means that together they could potentially contribute to an explanation of why senior high school students from areas of higher social deprivation are at significantly greater risk of failure to obtain a positive postsecondary destination.

SES and perceived career barriers.

It can be seen from the summary of results in Table 10 that participants who lived in areas of higher deprivation reported significantly greater perception of career barriers

than participants who lived in more socioeconomically advantaged areas. This means that participants from areas of higher deprivation were more likely to report that a postsecondary career was going to be difficult for them, and that circumstances were getting in the way of their choices. This finding therefore partially supports Hypothesis 9, made on page 94 in the methods and results chapter, which stated that participants from lower socioeconomic backgrounds will report lower perceptions of contextual supports and higher perceptions of career barriers. This is an important finding by the current study, as it could contribute to an explanation of the fact that success in actually obtaining a positive postsecondary destination decreases with increasing levels of social deprivation in the both the local and national populations of school leavers.

However, it should be noted that this finding is inconsistent with the previous finding of McWhirter, Torres, Salgado and Valdez, (2007) who reported no difference in the perception or likelihood of perceived barriers to postsecondary plans in relation to SES, in high school students in the USA. Although, this previous result has already been questioned in the literature review on the basis that McWhirter et al. (2007) used parental education as a measure of SES, which was arguably inadequate to capture the multi-dimensional nature of SES. So it is possible to contend that, because of the multi-dimensional measure of SES used in the current study, that the differences observed in perceptions of career barriers reported by young people who lived in areas of different social economic status is a robust finding, despite being inconsistent with the previous finding of McWhirter et al. (2007). Therefore, this finding of the current study, that there was greater perception of career barriers by participants living in areas of higher deprivation, could potentially contribute to an explanation of why young people who lived in areas of higher social deprivation are at greater risk of failure to actually obtain a positive postsecondary destination.

It is necessary to acknowledge that such a phenomenon could be operating in two different ways. It could be that the perceptions of the participants are accurate and there are objective differences in the existence and difficulty of career barriers and that participants who lived in areas of high social deprivation did encounter a higher incidence of real career barriers. However, it is also a possibility that the higher

levels of perceived career barriers reported by participants who lived in areas of higher social deprivation are operating in a subjective way only. This finding of the current study therefore raises an interesting and important question for future research about the relative importance of objective and subjective dimensions in this observed difference between young people who lived in areas with different levels of social deprivation. Clearly, the answer to this research question will have important onward implications for educational policy and practice, and the design and implementation of interventions to help senior high school living in areas of higher deprivation to address their perceptions of greater career barriers.

SES and career mindset.

It can be seen from the summary of results in Table 10 that participants who lived in areas of higher deprivation reported a greater tendency to hold a fixed, or entity, career mindset than participants who lived in more socio-economically advantaged areas, who reported a greater tendency to hold a growth, or incremental, career mindset. This means that senior high school students from areas of higher social deprivation were more likely to perceive their ability to have a positive postsecondary career as something that was already decided, depended on luck, and which they could not change. It confirms Hypothesis 12, made on page 94 in the methods and results chapter, which stated that participants from lower socioeconomic backgrounds will report higher levels of fixed career mindset and lower levels of growth career mindset. This is an important finding by the current study as it could contribute to an explanation of the fact that success in actually obtaining a positive postsecondary destination decreases with increasing levels of social deprivation in the whole population of school leavers. It is important to note that this finding of the current study would appear to be wholly original, as no precedent could be found in the literature of a study which investigated the impact of SES on career mindset.

The study by Robins and Pals (2002), as analysed in the literature review, provided some potential insights about how this greater tendency to endorse a fixed career mindset might result in a negative impact on high school student's ability to attain a positive postsecondary destination. These researchers found that, in participants

making the transition from high school to university, a tendency to endorse an entity theory was associated with adoption of performance goals; while in contrast a tendency to endorse an incremental theory was associated with adoption of learning goals. With these participants, endorsing an entity theory was also associated with a helpless response pattern: while in contrast, a tendency to endorse an incremental theory was associated with a mastery response pattern.

Therefore, in terms of career mindset theory, it is possible that, because of their greater tendency to endorse the view that their career ability as predetermined and beyond their control, participants in the current study who lived in areas of higher deprivation may be more likely to operate performance career goals. Implicit self-theory, or mindset theory, would suggest that this behaviour may be motivated to minimise the possibility of failure, but in so doing forecloses potentially valuable learning opportunities and experiences (Dweck & Leggett, 1988). In contrast, it is possible that because of their greater tendency to endorse the view that their career ability as malleable and within their control, participants who lived in more socially advantaged areas of the research area may be more likely to operate mastery career goals which they set in a way which orientates them towards more challenging career development experiences, and so creates more career learning opportunities.

It is not possible to comment with certainty from the data in the current study that the greater tendency to endorse a more fixed career mindset reported by high school students who lived in areas of greater deprivation was associated with the adoption of performance rather than mastery career goals, as this latter variable was not measured in the current study. However, it is possible to hypothesise on the basis of the evidence that there could be a link between this greater tendency to endorse a more fixed career mindset and the finding discussed directly above, in the section titled SES and performing career development tasks: that participants from lower socioeconomic backgrounds reported lower performance of career development tasks. The empirical and theoretical work of Robins and Pals (2002) summarised in the literature review and alluded to above, would indeed suggest that high school students who showed a greater tendency to endorse a fixed career mindset would be more likely to be motivated to minimise the possibility of failure, and so be less likely to seek out the potentially challenging tasks measured in the Performance of

Career Development Tasks Scale. It will be recalled that these tasks included taking up opportunities for career advice, making an application for a postsecondary destination, writing a Curriculum Vitae (CV), and practicing interview skills.

In summary, the original finding of current study that young people from less advantaged backgrounds endorse a fixed career mindset has clear implications for educational policy, practice and future research. These implications will be discussed in more detail and in the context of other findings of the current study later in this chapter.

SES and career scaffolding attachments.

It can be seen from the summary of results in Table 10 that participants who lived in areas of higher deprivation reported less experience of career scaffolding attachments than participants who lived in more socio-economically advantaged areas. This means that senior high school students from areas of high deprivation were less likely to report that they have close attachment relationship figures at home or among peers in school, with whom they can discuss their career. This finding of the current study therefore provides support for Hypothesis 13, made on page 95 in the methods and results chapter, which stated that participants from lower socioeconomic backgrounds will report fewer perceptions of positive career scaffolding attachments.

This is an important finding by the current study as it could contribute to an explanation of the fact that success in actually obtaining a positive postsecondary destination decreases with increasing levels of social deprivation in both the local and national populations of school leavers. This finding of the current study would appear to be wholly original, as no precedent could be found in the literature of a study which investigated the impact of SES on the perception which high school students on the attachment relationships they have at home and in school, which they can use as sources of career support.

The study by Germeijs and Verschueren, (2006), as analysed in the literature review, provided some potential insights about how this lower experience of career

scaffolding attachments found in the current study might result in a negative impact on high school student's ability to attain a positive postsecondary destination. These researchers reported a significant association between perceived security of attachment to mother and the ability to accomplish career decision tasks, and that this association was mediated by career decision-making self-efficacy beliefs. This association meant that high school students who reported higher attachment to mother, also reported greater career decision-making self-efficacy. Perhaps most significantly, Germeijs and Verschueren found that students with higher attachment to mother were also more able to actually make a career decision in practice.

In summary, it would appear that the pattern of associations between attachment, career decision-making self-efficacy, and performance of career exploration activities on the one hand, and SES on the other, is likely to be complex and subtle. However, the substantive and original finding, with regard to reported career scaffolding attachments in the current study, is unequivocal and clear. It has been shown that participants who lived in areas of higher deprivation reported lower career scaffolding attachments than participants who lived in more socially advantaged areas. In essence, this means that participants living in areas of higher deprivation report less experience with attachment figures at home and/or among their peers, that they trust and feel close to, and with whom they can discuss their career, when compared with participants living in more socially advantaged areas. Therefore, this original finding of the current study could potentially contribute to an explanation of why young people from areas of higher social deprivation are at greater risk of failing to obtain a positive postsecondary destination in employment, education or training. The finding therefore has clear implications for educational policy, practice and future research. These implications will be discussed in more detail and in the context of other findings of the current study later in this chapter.

The effect of gender on social cognitive career factors

Statistical analysis carried out in the current study has confirmed that a significantly greater proportion of male school leavers, within both the national and local population of school leavers, failed to obtain a positive postsecondary destination in employment education or training, in comparison with females. This finding

supports Hypothesis 2 made on page 94 in the methods and results section, which stated that male high school students in both the national and local research populations will be less likely to enter a positive destination on leaving school than female school leavers. The results of the current study also showed significant differences in a range of social cognitive career factors between young males compared to young females. These findings will now be examined in greater detail in terms of how they relate to previous research findings. The patterns in these results will also be discussed in order to explore their potential to contribute to an explanation of why young males are so overrepresented compared to females, in the population of young people who fail to obtain a positive postsecondary destination in employment, education or training.

Gender and postsecondary destination self-efficacy beliefs.

It can be seen from the summary of results in Table 10 that male senior high school students report significantly higher positive postsecondary destination self-efficacy beliefs than females, despite being at greater risk of failing to actually obtain a positive destination. There is, therefore, clearly an interesting tension between these two findings, which is worthy of further examination. It is instructive to first compare the finding on positive postsecondary destination self-efficacy with that of Chin and Kameoka (2002), as analysed in the literature review. These workers found that career self-efficacy beliefs of high school children in the USA were not influenced by gender.

However, as already argued in the literature review, the Self-efficacy Scale for Future Attainment Scale, which was custom made by Chin and Kameoka (2002), was a flawed measure of self-efficacy beliefs. The instrument was inconsistent with design conventions for the measurement of self-efficacy beliefs described by Bandura (2006) in two important ways. Firstly, it measured *intention* to perform certain actions such as going to college or getting a job, rather than the participants' perceptions of their *ability* to perform these actions. Secondly, it used an agreement scale rather than a confidence scale. For these reasons it could be argued that the instrument used by Chin and Kameoka (2002) is fundamentally inconsistent with the underlying social cognitive theory which the study purports to test, and therefore not

a valid measure of self-efficacy beliefs. Furthermore the instrument used by Chin and Kameoka (2002) used a four-point Likert scale as opposed to the 100-point scale recommended by Bandura (2006) and shown empirically by Pajares, Hartley, and Valiante (2001) to give much greater discriminatory power in practice.

Another study by Panagos and Dubois, (1999) also found no significant effect for gender in career self-efficacy beliefs in high school students with learning difficulties in the USA. However, again, as analysed in the literature review, there were significant grounds for concern over the structure of the measure of self-efficacy used in this study, as it involved only a single item rating scale.

Therefore, it may be argued that the finding of greater positive destination self-efficacy in male senior high school students compared to females within the current study efficacy is nevertheless robust. The divergence from findings in previous studies may be attributable, in part, to the fact that a more theory-consistent measuring scale has been designed and deployed in the current study, to measure self-efficacy beliefs about the attainment of a positive postsecondary destination. However, this highlights the more challenging and substantive question of why male senior high school students in the current study reported greater postsecondary destination self-efficacy beliefs than females, despite clear evidence from both national and local, secondary data sources, that male high school students were significantly more likely to fail to actually achieve a positive postsecondary destination, than female high school students.

It would appear that, in relative terms, the level of confidence expressed by males in the current study about their ability to secure a positive postsecondary destination is relatively greater than their actual performance, when compared with females. This raises the possibility that the level of self-efficacy belief expressed by male high school students in the current study may represent a relative over confidence in their ability to perform the target behaviour, when compared to females. Indeed, it has already been highlighted in the literature review that Brown and Lent (2006) argued that self-efficacy beliefs that are significantly discrepant from ability, to the extent that they indicate over confidence, can be maladaptive and ultimately result in disappointment and hindrance. It was also highlighted in the literature review that

Bandura (1986) argued that self-efficacy beliefs which moderately exceeded existing objectively measured ability were probably most favourable in terms of their ultimate positive impact on performance levels. This issue will be considered further in the light of other results later in this discussion.

Gender and career learning experiences.

It can be seen from the summary of results in Table 10 that male high school students in the current study reported significantly lower scores with regard to the career learning experience of past performance than females. This means that males perceived that they had less previous learning experience of success in a part time job or work experience, than females. This result is consistent with the finding of Anderson and Betz (2001), analysed in the literature review, who reported that male high school students in the USA had lower scores than females for a measure of past performance of career relevant social skills. This finding of the current study is also consistent with one of the core SCCT hypotheses made by Lent, Brown, and Hackett (1994); that the level of career performance an individual attains is derived in part from their previous experience of career-relevant past performance. This hypothesised relationship was shown graphically in Figure 7 in the literature review. Therefore it may be reasoned that the significantly lower levels of career-relevant past performance reported by males compared to females found in the current study could potentially contribute to an understanding of why male school leavers are at greater risk of failing to obtain a positive postsecondary destination.

As previously highlighted in the literature review and shown graphically in Figure 7, Lent, Brown, and Hackett (1994) hypothesised that past performance can exert its effect on career performance attainment in two distinct ways. The first hypothesis shown in Figure 7 was that past performance had its effect on performance attainment indirectly, by being mediated through higher levels of self-efficacy, outcome expectations and goal setting. This hypothesis is not supported by the findings of the current study. Indeed, as discussed in the section of the discussion immediately above, the current study has shown that male high school students had significantly higher positive destination self-efficacy than females. However, it can be seen from Figure 7 that Lent et al (1994) also hypothesised a second way in which

past performance can exert its effect *directly* on career performance attainment. This second hypothesis is shown by the unbroken arrow between past performance and performance attainment level in Figure 7. Therefore, it could be argued that this particular finding of the current study is highly consistent with this second, direct pathway hypothesised by Lent et al. (1994). Therefore, the lower levels of past performance found in male high school students in the current study compared to females, could potentially contribute to an explanation of why male school leavers are at greater risk of failing to obtain a positive postsecondary destination compared to females.

However, in contrast it can be seen from the summary of results in Table 10 that male senior high school students reported significantly higher levels of positive emotional arousal when thinking about their postsecondary career prospects in comparison with females. This means that males were more likely than females to report being confident about their career prospects and feeling good as a result, as opposed to being worried about failure and feeling bad in consequence. Although it is important to recall that this finding was inconsistent with the previous study by Anderson and Betz (2001), who found no difference between males and females in the absolute levels of Emotional Arousal. However, it is also potentially relevant that Anderson and Betz (2001) found that Emotional Arousal was a significant learning source for a career related measure of social self-efficacy for females only. This would seem to indicate that gender differences can potentially exist, not only on the measured level of emotional arousal, but also in the extent to which it impacts on measured self-efficacy beliefs.

Gender and setting career goals.

It can be seen from the summary of results in Table 10 that male high school students, compared to females, reported significantly greater scores on the Setting Career Goals Scale. This indicated that males were more decided on what they wanted to do and perceived themselves as more able to choose a career that would suit them, than females. This finding of the current study would appear to be wholly original, as no precedent could be found in the literature of a study which investigated the impact of gender on postsecondary career goal-setting behaviour in

high school students. However, in a study already evaluated in the literature review, Rogers and Creed (2011) found that high school students who reported greater self-efficacy beliefs also reported greater goal-setting behaviour. This pattern of association may also be present in the results of the current study to the extent that male high school students compared to females reported more positive postsecondary destination self-efficacy beliefs and also greater goal-setting behaviours. This therefore broadens the question already raised in the gender and postsecondary destination self-efficacy beliefs section directly above. This broader question is why is it that male high school students in the current study reported greater ability to set career goals *and* greater self-efficacy beliefs than females, and yet are less likely to be successful than females in actually achieving positive postsecondary destinations. This issue will be discussed in more detail in the light of other results later in this discussion section.

Gender and performing career development tasks.

The results summarised in Figure 10 show that no main effect was found in the performance of career development tasks with regard to gender. This finding is consistent with the finding of Rogers and Creed (2011), as analysed in the literature review, who also found no difference in performance of career planning and career exploration with regard to gender. However, the interaction effect found between SES and gender in the current study is also potentially illuminating. In areas of higher deprivation, male high school students reported greater performance of career development tasks than females. However, in more socio-economically advantaged areas, males reported less performance of career development tasks than females.

Looking at these results in graphical form in Figure 17, it is possible to analyse this interaction effect in more detail. It will be recalled that this shows a significant main effect for deprivation on performing career development tasks. This meant that, for the population as a whole, school leavers living in areas of greater social deprivation reported less performance of career development tasks, which included taking up opportunities for career advice, making an application for a postsecondary destination, writing a Curriculum Vitae (CV), and practicing interview skills. However, from close inspection of Figure 17 it can be seen that this main effect was

derived from the fact that females showed a striking pattern of decreasing reported performance of career development tasks with increasing levels of social deprivation. These responses by female high school students therefore corresponded well to the pattern of decreasing success in achieving postsecondary destinations in the population as a whole. In contrast, males showed little change in their reported performance of career development tasks at different levels of social deprivation. Therefore, this finding of a significant interaction between gender and deprivation raises a thought-provoking question of why males who lived in areas of higher social deprivation reported greater performance of career development tasks than females, and were less successful than females in actually achieving positive postsecondary destinations. This issue will be discussed in more detail in the light of other results later in this discussion section.

Gender and career optimism.

It can be seen from the summary of results in Table 10 that male high school students in the current study reported significantly greater career optimism than females. This result with regard to gender is however inconsistent with the findings of a previous study by Creed, Patton, and Bartrum (2004) who found that there was no significant difference between male and female high school students in Australia with regard to optimism or pessimism.

It can be seen from the interaction effect between SES and gender shown in Figure 19, that the disparity between males and females with regard to career optimism is significantly greater at high *and* low deprivation than it is at medium deprivation. As noted in the literature review, Creed, Patton, and Bartrum, (2004) worked with a relatively small sample of 130 high school students from a single suburban high school in Australia, with only moderate levels of social deprivation within the catchment area. Therefore, it is possible that the significant difference in reported career optimism between males and females found in the current study is attributable in part to the fact that it sampled a larger and more heterogeneous population, in terms of SES, than the sample used by Creed et al (2004). It could be argued that Creed et al. (2004) failed to detect a difference in career optimism between males and females because the population sampled was predominantly of medium level

social deprivation, which the current study has shown to have less marked differences between males and females with regard to career optimism.

Nevertheless, it is important to note that Creed, Patton, and Bartrum (2004) found that being more optimistic was associated with greater career decision-making self-efficacy. Therefore, although the finding of the current study that male high school students reported significantly higher levels of career optimism was not what would have been initially anticipated, it is however potentially explanatory of the complex pattern of findings of the current study reported above. For example, as noted in the discussion section above on gender and postsecondary destination self-efficacy beliefs, the current study has shown that male high school students reported higher postsecondary destination self-efficacy beliefs than females, despite the fact that they are less successful than females in obtaining positive postsecondary destinations. Also, as noted in the discussion section above on gender and setting career goals, the current study has shown that male high school students reported greater perceived ability to set goals than females, despite the fact that they are less successful than females in obtaining positive postsecondary destinations. Therefore, it is possible that the higher levels of career optimism found in males in the current study may be contributing to what appears in effect to be relative *over* confidence in males about their ability to both set career goals and secure a positive postsecondary destination in comparison with females.

Importantly, it is possible to interpret this pattern of findings with regard to gender found in the current study as potentially challenging to some of the core hypotheses of both generic social cognitive theory and SCCT, which hold that greater domain-relevant self-efficacy, greater goal setting behaviour, and greater levels of dispositional optimism will contribute to greater actual performance of the domain-specific target behaviour. The results show that despite having higher levels of positive postsecondary destination self-efficacy, higher levels of reported goal setting behaviour, and higher levels of career optimism, male senior high school students nevertheless are at greater risk of failing to attain a positive postsecondary destination. Therefore these significant results of the current study, in respect of gender, could be interpreted as providing an important qualification of those core hypotheses of social cognitive theory and SCCT: that career self-efficacy, reported

career goals, and career optimism, *on their own*, may be insufficient to produce positive increments postsecondary destination outcomes.

Support for this interpretation of these findings of the current study can be derived from the work of Gottfredson (2005). As analysed in the literature review, Gottfredson (2005) contended that improving actual career relevant abilities will be more effective than improving self-efficacy beliefs. Indeed, Gottfredson argued that: "to the extent that self-efficacy is malleable, ….improving it will depend on improving actual competence; to the extent that it is stable will be tapping an enduring personality trait, specifically, positive affect", (Gottfredson, 2005, p.23).

A further theoretical possibility is that self-efficacy operates independently of ability, and that both self-efficacy belief *and* domain-relevant ability are required to operate together to achieve a positive postsecondary destination. This latter possibility is clearly congruent with the position adopted by Bandura (1986), who argued that self-efficacy beliefs which moderately exceed existing, objectively measured ability are most favourable in terms of their ultimate impact on performance. Therefore, it is possible that the higher levels of positive destination self-efficacy belief reported by male high school students in the current study, when compared with females, may, in fact, be *mal-adaptively* high, in comparison with the ability or willingness of males to perform the relevant target behaviour, of actually obtaining a positive destination. Possible explanations for this include that the reported higher self-efficacy and career optimism in males, compared with females, serves some function in terms of ego defence. Another way of thinking about this may be that it is driven by young-male bravado.

It is also potentially instructive to link this pattern of findings, to the finding of the current study with regard to the performance of career development tasks as discussed above, which showed such an interesting interaction effect between SES and gender. It will be recalled that this interaction effect showed that the excessively positive self-appraisal by males with regard to their performance of career development tasks occurred particularly in males who lived in areas of high deprivation. This result would suggest that male high school students living in areas

of high social deprivation may be particularly vulnerable to over optimistic self-assessment of career relevant social cognitive factors.

Gender and career scaffolding attachments.

It can be seen from the summary of results in Table 10 that males reported fewer career scaffolding attachments than females. However this finding is inconsistent with the previous finding by Germeijs and Verschueren (2006), who found no difference in attachment status between male and female high school students in Belgium. However, as has already been noted in the literature review, Germeijs and Verschueren (2006) used the Inventory of Parent and Peer Attachment (IPPA), which is a generic measure of attachment status. This is in contrast to the Career Scaffolding Attachment Scale used in the current study, which was more specifically targeted on the extent to which high school students perceive that they have close attachment figures at home or among peers in school, with whom they can discuss their career. In other words the measure used in the current study is more consistent with the need that different social cognitive constructs should be measured in a parallel fashion within a single domain as advocated by Betz and Hackett (2006), as discussed in the literature review.

Furthermore, Germeijs and Verschueren (2006) used only the parent items from the IPPA and did not include the peer items from this attachment measure. This omission could be particularly significant in view of the findings of Ali, McWhirter, and Chronister (2005), as analysed in the literature review, which showed that perceived support from siblings and peers was more salient to adolescents making the postsecondary transition, than that derived from parents.

It is possible, therefore, that this non-specific and incomplete measure used by Germeijs and Verschueren (2006) could have reduced the discriminatory power of the measure to detect a difference in attachment status with regard to gender. Therefore, it is possible to argue that the clear and unequivocal finding of the current study that male senior high school students show lower scaffolding attachments than young females is robust, despite being contradictory to the previous finding by Germeijs and Verschueren (2006). In essence this means that males in the current

study reported less experience of attachment figures at home and among their peers, that they trusted and felt close to, and with whom they felt they could discuss their career, when compared with females. Therefore, this simple, clear difference in career scaffolding attachments between males and females does indeed seem to show considerable potential to contribute to an explanation why male school leavers are at greater risk than females of failing to obtain a positive postsecondary destination in employment, education and training after school.

Limitations

Ongoing validation of the Preparing for Postsecondary Indicator.

The main product of the study, which is the new, 38-item, post-empirical Preparing for Postsecondary Indicator (PrePI) can only be considered as the beginning step in a potentially long iterative process of refinement and validation of this instrument, to identify and assess social cognitive career factors considered relevant to the postsecondary transition. However, it is instructive to evaluate the progress achieved with the development of this new instrument in terms of different types of test validity including face, internal, external, construct and predictive validity.

In terms of face validity, which is arguably the least stringent measure of validity, the PrePI has gathered some good evidence from the results of the focus groups of high school students who indicated that they thought it allowed them to communicate what they were thinking, feeling and doing as they prepared to make the postsecondary transition. Indeed it has been argued by Nevo (1985) that tests in which the purpose is clear, even to naive respondents, can be said to have high face validity.

The study has also shown some good initial evidence for internal validity in that several statistically significant relationships have been shown to exist between scores on individual scales of the PrePI, and SES and gender, which have in turn shown to be empirically linked to success and failure in the postsecondary transition process. However, it should be acknowledged as a limitation that these empirical links are indirect. This is because the empirical link found between the scores on the PrePI

with success and failure in achieving a positive postsecondary destination was indirect, and inferred from effects detected in local and national populations. This approach was necessary because no direct data for the actual postsecondary destinations of participants was available to the study.

External validity can be thought of as the extent to which the results of testing of the PrePI can be generalised to other contexts (ecological validity), other population groups (population validity) and over time (historical validity) (Gregory, 2015; Kaplan & Saccuzzo, 2001, Anastasi, 1982). Due to the newness of the instrument, testing of the validity of the instrument has been restricted in all three of these types of external validity because the data were collected from within a limited context, population and time period. The participant sample was restricted to six schools from a single educational administration area in a large urban authority in Scotland. As discussed above, analysis has shown that the distribution of social economic status in this research context was skewed towards participants living in areas of higher social deprivation, in comparison with the national population of Scotland as a whole. An attempt to replicate the distribution of social deprivation within the national population, by selecting an appropriate sample of participating schools, was largely unsuccessful due to the lack of availability of schools serving relatively socially advantaged catchment areas within the research context.

Construct validity has been described as the "extent to which test results support a network of research hypotheses based on the assumed characteristics of a theoretical psychological variable", (Coolican, 1990, p. 157). The process of factor analysis and the statistically significant evidence derived from ANOVA in the current study have generated some solid initial evidence towards this goal of showing construct validity for the component scales of the PrePI. However, as will be argued more fully below, this can only be viewed as the first step in an ongoing process that requires further corroboration from different methods and approaches, including qualitative as well as quantitative.

Predictive validity is the degree to which a test accurately predicts a criterion variable that will occur in the future (Gregory, 2015). Therefore, as alluded to earlier in this limitations section, it could be considered a significant limitation that no data

was available to the current study on the real postsecondary destination outcomes eventually achieved by individual participants. Instead the current study identified and measured a factor called "performance of career development tasks", which asked participants about their previous performance of behaviours likely to help with the attainment of a positive postsecondary destination, including contacting prospective employers and education providers, practicing interview skills, and writing a Curriculum Vitae (CV).

It is important to recognise, however, that this limitation is by no means confined to the current study. Despite diligent searching, no study was found in the course of the literature review that directly related measurement of social cognitive career factors at the high school stage to the subsequent achievement of a positive postsecondary destination in employment, education or training. The closest a study came to this aspiration was Rogers and Creed (2011) who, like the current study, measured reported performance of career exploration and career planning actions. This common limitation is likely to be due to the practical difficulty of accurately monitoring and tracking a large number of young people into a wide range of different types of destination including various employers, and education and training providers. Another reason for the lack of longitudinal studies which track participants into postsecondary destinations could be the binding time constraints imposed by pressures to publish and submit academic work.

Generalisability of the findings of the study.

The ongoing nature of the validation process of the Preparing for Postsecondary Indicator (PrePI), as discussed in the section immediately above, has implications for generalisability of the substantive findings of the study, in terms of the differences in social cognitive factors in relation to SES and gender. The research sample of schools included six secondary schools from within the total population of thirty secondary schools in the host local authority. As discussed in the methods section, the ideal theoretical population for the study was identified as the whole population of school leavers in Scotland. This reflected an aspiration that the substantive findings of the study, in terms of differences in social cognitive factors with regard to SES and gender, should have as much generalisability as possible beyond the

immediate research context to the whole of Scotland, and possibly by inference to the UK and beyond. However, as highlighted in the methods and results chapter, this aspiration was constrained by the schools available within the research context. The impact of this population constraint on the generalisability of the findings of the current study to the whole host local authority Scotland as a whole, the United Kingdom, and countries beyond the United Kingdom, will now be discussed in turn.

The host local authority and Scotland as a whole.

It will be recalled that the six schools in the research population were carefully selected in an attempt to counteract the marked skew towards higher levels of deprivation within the host local authority population as a whole. This was done by deliberately overweighting the research sample with the schools which had the most socially advantaged catchment areas present in the research area. However, as discussed, it was subsequently recognised as impossible to create a research sample which had a close approximation to the SIMD distribution of the Scottish population, from within the constraints of the nine schools available within the research area. Consequently, it was acknowledged that the sampling strategy of overweighting the schools which served the most advantaged catchment areas within the research area, had not been effective in redressing the skew towards higher social deprivation present in the research area population.

The subsequent objective comparison of the final research sample of participants, with the whole host local authority population, as shown in Figure 11, confirmed that these deprivation distributions remained similar in these populations, despite the deliberate overweighting with the schools with the most socially advantaged deprivation profiles available to the study. Therefore, it is possible to argue on the basis of the objective comparison shown in Figure 11, that the substantive findings of the study can be generalised with reasonable confidence from the research area sample to the whole local authority area in which the study was carried out.

However, it is likely that more caution is warranted in making assumptions about the generalisability of the substantive findings to the whole population of Scotland. As shown in Figure 11, it was objectively confirmed that the research sample remained

very significantly skewed towards high school students from areas of higher social deprivation, compared to the population of Scotland as a whole. However, it could be argued that successfully redressing the skew towards higher deprivation present in the research area population by the inclusion of a greater proportion of participants which serve comparatively socially advantages communities, would be more likely to amplify the effects of SES on social cognitive factors found in this study, rather than diminish them.

It is also important to recognise that the research sample did not include any high school students from the independent school sector, which represents approximately 4.3% of Scottish school children (Economist, 2012). It is a reasonable assumption that students from independent high schools would be drawn predominantly from the more socially advantaged segments of SIMD. It is also possible that students from the independent sector will have experienced a substantially different school culture, compared to their state school counterparts. Therefore, the absence of students from the independent school sector in the research sample could be considered a further significant limitation to the generalisability of the findings to the whole population of high school students in Scotland. However, again it could be argued that the inclusion of participants who lived in the research area but attended independent schools, would be more likely to amplify the effects of SES on social cognitive factors found in this study, rather than diminish them.

The United Kingdom and beyond.

The question of the generalisability of the findings in respect of the effects of SES and gender, from within a single urban local authority in Scotland, to the whole of the UK is potentially more complex still. For example, Craig (2003) has contended, from a broadly-based, social science perspective, that people in Scotland, compared to other parts of the UK, particularly with England, are lacking in self-confidence and have a predilection for negative thinking. Craig (2003) maintained that these national differences can be attributed to a wide range of factors including the pervasive influences of different cultural, religious, political, economic and gender-defining histories. However, Craig's general thesis has not been without its opponents. For example, Cohen (2004) has critiqued Craig's thesis from an

anthropological perspective, on the basis that she has failed to use fundamental anthropological concepts such as culture with appropriate rigour, but instead has used an “accretion of simplistic generalisations” (p. 160).

This leads to the ultimate question of how generalisable the main findings of the study with regard to SES and gender might be to countries and cultures outside the UK. As can be seen from summary Table 10, that a total of three studies were identified in the literature review which measured the effect of SES on career-relevant social cognitive factors in high school students in the USA (Ali, McWhirter, and Chronister 2005; Chin and Kameoka, 2002; and McWhirter, Torres, Salgado, and Valdez, 2007). All three of these previous studies reported findings that were inconsistent with the findings of the current study. All three of these studies confirmed the null hypothesis, where the current study indicated a significant relationship between the relevant social cognitive career factor and SES. Detailed analysis of each of these inconsistencies in the discussion section above has been used to argue that the detection of these significant SES effects for the first time in the current study is due to the use of more robust and theoretically consistent measuring instruments. Specifically it has been argued that these previous studies which confirmed the null hypothesis for the effects of SES used one-dimensional and inappropriate measures of SES, whereas the current study used a more sensitive, and theoretically appropriate measure, which combined 38 indicators across seven domains namely: income; employment; health; education, skills and training; housing; geographic access and crime. Similarly, it has been argued, case by case, that these previous studies used measures of career-relevant social cognitive factors which had significant weaknesses in terms of their validity including construct specificity, and also fidelity to underlying social cognitive theory.

As can be seen from summary Table 10, a total of four studies were identified in the literature review which measured the effect of gender on career-relevant social cognitive factors in senior high school students in countries outside the UK. These were in the USA (Chin and Kameoka, 2002; Anderson and Betz, 2001), Australia (Creed, Patton, and Bartrum, 2004), and Belgium (Germeijs and Verschueren, 2006). As discussed in the relevant dedicated sections of this discussion chapter immediately above, only one of these previous studies conducted with populations

outside the UK showed similar results to those found in the current study. This study was Anderson and Betz, (2001), who reported that male high school students in the USA had lower scores than females for a measure of past performance of career-relevant social skills. This result was confirmed in the current study in Scotland.

Three of these previous studies which measured the effect of gender on career-relevant social cognitive factors in senior high school students reported findings that were inconsistent with the findings of the current study (Chin and Kameoka, 2002; Creed, Patton, and Bartrum, 2004; Germeijs and Verschueren, 2006). Again these three studies confirmed the null hypothesis, where the current study indicated a significant relationship between the relevant social cognitive career factor and gender. Again, detailed analysis of these inconsistencies in the discussion section above has been used to argue that the detection of these significant gender effects for the first time in the current study is due to the use of more robust and theoretically consistent measuring instruments. It has been shown that each of these previous studies used measures of career-relevant social cognitive factors, which had significant weaknesses in terms of their validity, including construct specificity, and fidelity to underlying social cognitive theory.

Therefore, in summary, based on this analysis of the evidence, it is rational to tentatively hypothesise that the SES and gender effects found in the current study are generalisable to other countries in the UK and beyond. However, rigorous testing of this tentative hypothesis must await further replicating studies using the Preparedness for the Postsecondary Transition Indicator (PrePI) with high school participants, in conjunction with multi-dimensional measures of SES, in other countries and cultures.

Internal consistency of the Preparing for Postsecondary Indicator.

It should also be noted that, as reported in the results section above, limitations exist in the tested internal consistency of the component scales of the Preparing for Postsecondary Indicator (PrePI). Six of the thirteen new scales produced by factor analysis in the study had a Cronbach's alpha score marginally below the .7 threshold, which is often used as common rule of thumb for acceptability (Brace, Kemp, &

Snelgar, 2012). These six scales included the Career Learning Experience: Social Persuasion Scale, the Career Learning Experience: Vicarious Experience Scale, the Career Optimism Scale, the Career Mindset Scale, the Perceived Career Barriers Scale, and the Career Isolation Scale. This was an indication that these scales may benefit from further development in future studies. This will require an iterative and ongoing process of refinement of existing items, and testing of additional items to increase internal consistency.

The need for qualitative triangulation.

A further important limitation of the study is that the Preparing for Postsecondary Indicator (PrePI) relied heavily on quantitative analysis of data from self-report inventory items completed by high school students. This is only one method among many that could be useful to help with the process of understanding the social cognitive career factors, which may contribute to the attainment of postsecondary success. Indeed Bandura (1997) has noted that "the inferential processes that govern self-appraisal of efficacy are better elucidated by analysing how people select and integrate multi-dimensional efficacy information rather than by having them rate the relative weight they give to few preselected factors" (Bandura, 1997, p.84). It is ironic, however, that Bandura used self-report measures almost exclusively in his research on social cognitive theory.

Still more specific recognition for this need for corroboration using techniques other than quantitative analysis of data from self-report inventory items can be found in the research literature on attachment. For example, Jacobvitz, Curran, and Moller (2002) noted that self-report instruments do not assess all forms of attachment security. They argued that young people who hold dismissive representations of their attachment history may score equally as high on self-report instruments of attachment quality as adolescents with secure attachment representations. Therefore, it could be contended that there is a clear need for further exploration and triangulation of the significant effects identified in the current study, not only with regard to attachment, but also for all the other social cognitive career factors identified, using a range of contrasting research methods including qualitative approaches.

Implications for practice, policy and future research

Practice.

It could be argued that the best evaluation criterion for the Preparedness for Postsecondary Indicator (PrePI) is the extent to which it can be shown to be helpful to teachers, career development professionals, educational psychologists, and parents, who work collaboratively with high school students in the practical task of assessing and meeting their career development needs. A major aim of that collaborative assessment process is the design and implementation of effective educational experiences and interventions to improve postsecondary destination outcomes for all high school students. Another aim of assessment is to differentiate those educational experiences and interventions for the different needs of different young people.

This can be achieved by the recruitment of particular young people into specific intervention programmes designed to meet their individual needs. The results of this current study have provided some evidence-based guidance on how the PrePI might have the potential to add value to this ongoing process of educational assessment, design and differentiation of a range of interventions, and differential recruitment into different interventions. Therefore, the implications of the findings of the current study for educational assessment and intervention practice will now be considered in turn for each of the two main themes of this discussion section: firstly with regard to social deprivation, and secondly with regard to gender.

Career development interventions and deprivation

It can be seen from the summary of results in Table 10 that six scales from the PrePI showed a statistically significant effect with regard to social deprivation. These included positive postsecondary destination self-efficacy, vicarious experience, performing career development tasks, perceptions of career barriers, career mindset and career scaffolding attachments. The policy implications of each of these six findings will now be discussed in turn.

Postsecondary destination self-efficacy beliefs and vicarious experience.

It can be recalled from Table 10 that, as hypothesised, high school students who lived in areas of higher social deprivation reported lower levels of positive postsecondary destination self-efficacy beliefs. Therefore, it is valid to postulate that interventions designed to increase self-efficacy beliefs may be an effective way to improve postsecondary outcomes, particularly for high school students from areas of higher social deprivation. As noted in the literature review, according to social cognitive theory, as proposed by Bandura (1986) and Lent, Brown, and Hackett (1994), self-efficacy beliefs arise from four generic sources including past performance, vicarious experience, social persuasion, and emotional arousal. However in the current study only one of these sources showed a significant relationship with deprivation. It can also be recalled from the summary of results in Table 10 that, in the current study, high school students who lived in areas of higher social deprivation reported significantly lower levels of vicarious experience of success in postsecondary education and employment, than students from more advantaged backgrounds.

Therefore, it is valid to postulate that interventions designed to increase their exposure to successful career role models, particularly those who they perceive as being similar to themselves, may be an effective way to improve postsecondary outcomes for high school students from areas of higher social deprivation. An example of one way in which this could be achieved would be to incorporate teaching and learning experiences into the school curriculum that involved direct contact with recent former pupils of the school who had demonstrated success in a postsecondary destination. It would be particularly beneficial if former pupils could be recruited who grew up in the areas of higher social deprivation served by the school. In this way the high school students could be exposed to positive role models who have progressed well in terms of their education and or employment after leaving school to achieve career outcomes that might be considered desirable by the senior high school students. The Vicarious Experience Scale of the PrePI could provide assessment evidence to help design, target, and then empirically evaluate the

impact of these proposed teaching and learning interventions on high school students living in areas experiencing different levels of social deprivation.

Performing career development tasks.

It can be seen from the summary of results in Table 10 that, as hypothesised, high school students from areas of higher social deprivation reported lower levels of performing career development tasks. Therefore, it is valid to postulate that interventions designed to improve teaching and learning experiences in performing career development tasks may be effective in improving postsecondary outcomes for high school students from areas of higher social deprivation. Desirable learning outcomes for such educational interventions could include that high school students generate concrete portfolios of evidence of their attainment in taking up opportunities for career advice, making an application for a postsecondary destination, writing a Curriculum Vitae (CV), and practicing interview skills.

Such an approach would have the dual advantage of producing objective evidence of attainment and also creating and increasing subjective perceptions of competence on the part of the students themselves, with regard to these crucial skills. The Performance of Career Development Tasks Scale of the PrePI could provide assessment evidence to help design, target, and then empirically evaluate the impact of these proposed teaching and learning interventions on high school students living in areas experiencing different levels of social deprivation.

Perceptions of career barriers.

It can be seen from the summary of results in Table 10 that, as hypothesised, high school students who lived in areas of higher social deprivation reported greater perceptions of career barriers. As noted in the relevant section of the discussion section above, it is logically possible that greater perceptions of career barriers could potentially have both an objective and subjective component. Therefore, it could be argued that it is valid to postulate that teaching and learning interventions designed to enable high school students to explore and challenge both their subjective, and objective, experiences of career barriers may be effective in improving

postsecondary outcomes for high school students from areas of higher social deprivation.

This could provide a real context for solution-oriented coaching by teachers and other career development professionals, in a way which emphasises strengths and resources, in order to develop practical strategies for minimising and overcoming both objective and subjective career barriers. The Perception of Career Barriers Scale of the PrePI could provide assessment evidence to help design, target, and then empirically evaluate the impact of these proposed teaching and learning interventions on high school students living in areas experiencing different levels of social deprivation.

Career mindset.

It can be seen from the summary of results in Table 10, that high school students who lived in areas of higher social deprivation reported greater endorsement of a fixed career mindset, as opposed to a growth career mindset. Therefore, it is valid to postulate that interventions designed to improve teaching and learning experiences which offer young people an opportunity to identify, and where necessary challenge, their own existing career mindset, may be an effective way to improve postsecondary outcomes for high school students from areas of higher social deprivation. Desirable learning outcomes for this could include that high school students are more likely to perceive their ability to have a positive postsecondary career as something that is under their control, and which can be modified with perseverance and effort.

The Implicit Self-Theories Intervention Protocol designed and tested by Blackwell, Trzesniewski, and Dweck, (2007) may be a particularly fruitful source of ideas on how to design and implement appropriate interventions in the area of career mindset. This entails eight, 25-minute lessons, delivered on a weekly basis. The core of this model intervention included material which sought to evidence and persuade participants that their ability can be grown. It included the use of teaching metaphors, such as that comparing the brain to a muscle that can be developed with exercise, and encouraged students to conclude that “learning makes you smarter,”

(Blackwell, et al., 2007, p. 262). It also involved helping students identify things they have learned to do well, and to remember how frequent practice had been the key to attaining mastery. Students were prompted to discuss how their brains had changed as a result of this learning. When this intervention was implemented by Blackwell, et al. (2007) it was shown to increase a range of measured factors in a sample of high school students in New York City including: endorsement of an incremental self-theory (growth mindset); a measure of educational attainment; and the adoption of learning as opposed to performance goals. The career mindset scale of the PrePI could provide assessment evidence to help design, target, and then empirically evaluate the impact of these proposed teaching and learning interventions on high school students living in areas experiencing different levels of social deprivation.

Career scaffolding attachments.

It can be seen from the summary of results in Table 10, that high school students who lived in areas of higher social deprivation reported lower levels of career scaffolding attachments. Therefore, it is valid to postulate that interventions designed to improve the quality of career scaffolding attachments that high school students experience may be an effective way to improve postsecondary outcomes for high school students from areas of higher social deprivation. Desirable learning outcomes for this could include that high school students are more likely to perceive that they have attachments with the people close to them at home and in school, with whom they can discuss their career.

Moretti, Obsuth, Craig, and Bartolo (2015) may be a particularly fertile source of ideas on how to design and implement appropriate interventions in the area of career scaffolding attachments. These workers developed and tested a 10-week, 20-hour programme called *Connect,* for use with the parents of young people of high school age considered to have social emotional behaviour difficulties as a result of insecure attachment. This programme was designed to enable parents to strengthen the building blocks of secure attachment. It entailed psycho-education components to improve parents' understanding of the attachment processes. These were combined with experiential exercises and role play activities for parent participants on a range

of topics including, for example, the provision of a secure base through increased sensitivity of responding, especially in potential conflict situations. An empirical evaluation carried out by Moretti et al. (2015) in British Columbia, Canada, showed increases in measured attachment security in the parent-teen relationship. More specifically, it also showed decreased attachment avoidance and attachment anxiety on the part of the high school student participants. Therefore, it is possible that teachers and career professionals could offer a version of this intervention for parents and carers in a Scottish context, suitably adapted for local needs.

The rapidly developing intervention approach of Video Interaction Guidance (VIG) may also have potential to provide stimulus to teachers and career professionals for the development of creative intervention protocols to improve career scaffolding attachments. Kennedy (2011) identified VIG as an intervention in which participants are guided to reflect on video clips of their own successful interactions with others. It operates by actively engaging participants in a process of change towards better relationships. The guider leads the participant or participants by reviewing very short episodes of successful communication. The aim of this is to identify examples positive social interaction, on the basis that these are the emergent sources of more attuned interaction patterns. Kennedy, Landor, and Todd (2010) evaluated the use of VIG as an intervention specifically designed to improve attachment between parents and young children. The results showed improvements in measured attachment behaviours in the children, which these workers attributed to increased sensitivity of contingent responding by the parents to their children's initiatives.

The Basic Trust Method described by Polderman, Kellaert-Knol, and Stams (2011) may also offer a particularly rich model for teachers and career professionals to help with future development of creative intervention protocols to improve career scaffolding attachments. This specialised form of VIG was designed to improve attachment patterns between caregivers and children aged 0-18 years. In a similar fashion to generic VIG, this intervention was focused on improving sensitivity of parent responding when communicating with their children. However, it combined this with a psycho-education component which sought to help parents understand their child's current functioning from the perspective of their historic attachments.

The Career Scaffolding Attachments Scale of the PrePI could provide assessment evidence to help design, target, and then empirically evaluate the impact of these proposed teaching and learning interventions on high school students living in areas experiencing different levels of social deprivation.

Career development interventions and gender.

It can be seen from the summary of results in Table 10, that six scales from the Preparedness for Postsecondary Indicator (PrePI) showed a statistically significant effect with regard to gender. However, only two of these effects were in the direction anticipated. These included past performance, and career scaffolding attachments. In contrast, four statistically significant effects were found to be in the opposite direction from expectations. These included positive postsecondary destination self-efficacy, positive emotional arousal in relation to career prospects, setting career goals, and career optimism. The policy implications of each of these six findings will now be discussed in turn.

Past performance.

It can be seen from the summary of results in Table 10, that male high school students reported lower levels of past performance than females. This indicated that males were less likely to report that they had already experienced some success in a part time job or work experience, than females. Therefore, it is valid to postulate that interventions designed to give additional, highly structured and supported learning experiences of success in real employment contexts may be an effective way to improve postsecondary outcomes for male high school students. An example of one way in which this could be achieved is additional short, intensively mentored work placements. It may be possible to combine these interventions with other interventions designed to provide increased exposure to role models, and strengthen career scaffolding attachments outlined immediately above. The Past Performance Scale of the PrePI could provide assessment evidence to help design, target, and then empirically evaluate the actual effects of these proposed teaching and learning interventions on male participants.

Career scaffolding attachments.

It can be seen from the summary of results in Table 10, that male high school students reported lower levels of career scaffolding attachments than females. It has already been noted, immediately above, that high school students who lived in areas of higher social deprivation also reported lower levels of career scaffolding attachments. Therefore, it could be postulated that the same interventions advocated above to improve the quality of career supporting attachments could also be an effective way to improve postsecondary outcomes, not only for high school students from areas of higher social deprivation, but also for males in general, and perhaps for males from areas of higher social deprivation, in particular. It will be recalled that these suggested interventions included psycho-education and Video Interaction Guidance programmes designed to enable parents and teachers to strengthen the building blocks of secure attachment, and so provide enhanced relationship contexts within which career discussions can take place.

Enabling adaptive self-appraisal in male students

However, the results also indicate that a particular cautionary note may be appropriate with regard to educational practice intended to improve the positive postsecondary destination achievement of male high school students. Against expectations, the results showed that males, when compared to females, were found to report greater positive destination self-efficacy beliefs, more positive emotional arousal in relation to their career prospects, better ability to set career goals, and greater optimism about their future careers. Therefore, a clear tension exists between the findings of the current study and the fact that males are nevertheless at greater risk of failing to obtain a positive postsecondary destination than females.

These important findings would seem to support the inference that positive self-efficacy beliefs, positive emotional arousal, goal setting behaviour, and career optimism, may on their own be insufficient to ensure a positive postsecondary destination. These particular results in relation to male high school students would seem to support the criticism of Gottfredson (2005), discussed in the literature

review, that social cognitive career theory downplays the crucial importance of ability and aptitude in performance attainment. It will be recalled that Gottfredson (2005) contended that improving actual career relevant abilities will be more effective than improving self-efficacy beliefs. On the basis of this theoretical stance, it could be argued that males, when compared with females, may in fact be *over* confident and *over* optimistic in their ability to set career goals, and then obtain a positive postsecondary destination.

This would seem to indicate that boosting the self-efficacy beliefs and career optimism of male senior high school students, without objective confirmation of their actual ability to set suitable career goals and perform appropriate career development tasks, such as for example contacting potential employers and education providers, may in fact be counterproductive. This interpretation would appear to strengthen the case made above of targeting specific male high school students with interventions designed to give them additional, highly structured and supported learning opportunities to experience success in real employment contexts. As noted above this has the potential to enable them to develop more positive perceptions of their own past performance in employment contexts. However, this intervention also has the potential to help male high school students, who may be over confident or over optimistic about their career prospects, to conduct their self-appraisal more accurately and adaptively on the basis of more evidence from greater vocational experience.

Enabling adaptive emotional labelling and optimism in female students.

It can be seen from the summary of results in Table 10, that female high school students, compared to males, reported lower positive postsecondary destination self-efficacy, less positive emotional arousal in relation to career prospects, less career goals setting, and less career optimism. It is rational to postulate, therefore, that interventions which enable female high school students to identify and be aware of their emotional arousal in relation to their career prospects may have the potential to increase their positive postsecondary destination self-efficacy beliefs. This in turn could be used to negotiate individualised activities which female high school students could undertake to develop more adaptive cognitive labelling of their

feelings of career-related emotional arousal. The results would also suggest that female students in particular may benefit from specific interventions which help them to identify and develop their levels of optimism about their career prospects and how they might set appropriately challenging career goals.

The Penn Optimism Programme (Shatte, Gillham, and Reivich 2000; Jaycox, Reivich, Gillham, and Seligman, 1994) may provide a fruitful source of effective ideas on how to design and implement appropriate interventions in this area. This programme entails a 12-week, 24-hour, school-based intervention delivered in groups of eight to twelve school students by a teacher trained in the programme. The programme is based on the principles of cognitive behaviour therapies as originally devised by Beck (1972) and Ellis and Dryden (2007), which have been adapted for school aged children and recast as a preventative intervention. The intervention therefore uses cognitive components including disputing causal beliefs, and decatastrophising to promote more hopeful thinking. These are combined with more behaviourally oriented skills including negotiation, assertiveness, relaxation and problem solving strategies.

Policy.

There are grounds to argue that the Scottish Government Opportunities for All policy (Scottish Government, 2012a) is already bold and progressive, in that every school leaver is guaranteed an offer of a fully-funded, positive destination on leaving school. As noted in the introduction section of the thesis there is a very wide range of schemes funded by the Scottish Government and delivered by Skills Development Scotland and other government and non-government agencies to provide guaranteed positive first destination opportunities to young people. Many of these are specifically targeted at those young people who are assessed by their school to be at risk of not achieving a positive postsecondary destination. Many of these initiatives are targeted specifically on geographical areas and local communities with high levels of deprivation. However, in the light of the findings of the current study, it could be potentially beneficial if SES was given still greater prominence and recognition as a risk factor for failure to achieve a positive postsecondary destination, within both Scottish Government and individual local authority policy

guidance. It would also be particularly helpful if the Preparedness for Postsecondary Indicator (PrePI) could be recommended in local authority policy guidance to schools, for use alongside other measures to identify those young people at greatest risk of failing to obtain a positive postsecondary destination. The PrePI could then also be used to help select which young people should be recruited into which interventions. It could then be part of the pre- and post-intervention evaluation, and quality assurance of these interventions.

There is evidence to suggest that there is an increasing political willingness to consider the possibility that the stark differences in school attainment and postsecondary performances at different levels of SES may actually rest on fundamental differences in the psychologies of aspiration, attitude and behaviour. This evidence is to be found in the prominence that Scottish Government and individual local authorities have given to reports such as *Closing the Gap* produced by the Joseph Rowntree Foundation (Carter-Wall and Whitfield, 2012). Therefore, it may be that the political timing is right for an even more explicit differentiation of curriculum, teaching strategies, and teaching environments to take account of differences in the psychologies of young people from different social economic backgrounds, and possibly also with regard to gender. The beginnings of this already exist in Scottish Government's apparent willingness to allow local differentiation on these dimensions to meet local needs in the *Curriculum for Excellence*, (Scottish Government, 2016).

Future research.

There are several points raised earlier in the discussion that suggest tasks for future research. As already noted, there are significant outstanding tasks in the development process of the Preparedness for Postsecondary Indicator (PrePI) itself, in terms of the limitations highlighted with regard to its internal consistency and validity. This is necessarily an ongoing and iterative process. As already suggested, improvements in internal consistency should be tackled by empirically testing new versions of the instrument which contain modified items, and also new items, to determine which combinations result in improved internal consistency coefficients for individual scales. Similarly, the different types of validity highlighted above should be

improved by further research. This should include internal, external, construct and predictive validity. Improvements in external validity will require testing and development with wider groups in other geographical areas, and with diverse racial and ethnic groups, living in different social economic conditions.

Anastasi (1982, p.155) has argued that, "It is only through the empirical relationships of test scores to other external data that we can discover what a test means." Therefore improvements in construct validity will require future research to explore how robust the underlying constructs actually are. This will require the use of different methods including qualitative as well as quantitative. Improvements in predictive validity can only come with further research to determine the extent to which test scores on the scales of the Preparedness for Postsecondary Indicator (PrePI) can actually predict participants' performance on the criterion variable; which is attainment of a positive postsecondary destination in employment, education and training.

Therefore, there is clearly a need for further research to confirm if the differences in social cognitive career factors identified in the current study, with regard to SES and gender, are in fact predictive of the actual attainment of a postsecondary destination. This research would be most effective if it was possible to relate variations in social cognitive career factors, *and* variations in SES, *and* with gender, *directly* to the actual subsequent performance of participants to obtain a positive postsecondary destination in employment, education and training. This would require a longitudinal research design, which first measures social cognitive career factors using the Preparedness for Postsecondary Indicator (PrePI) at the beginning of the study, and then monitors and tracks the progress of these participants into their postsecondary destinations, over a period of months, and perhaps years.

The discussion above with regard to implications for practice has highlighted some possible intervention strategies to improve social cognitive career factors in the functioning of high school students, as they prepare for the postsecondary transition. The literature review, together with results of the current study, would strongly indicate that the effectiveness of these suggested interventions should be tested, not by a correlational design, as used by the majority of studies analysed in the literature

review, but instead by an experimental, or quasi-experimental, design. As discussed in the literature review, the intervention study carried out by McWhirter, Crothers, and Rasheed, (2000) provides a good example of this. The experimental method used by these workers also employed integral controls, which allowed them to make valid claims about the likely existence of causal links between the intervention and the measured changes in the thinking and behaviour of participants.

As noted in the literature review, it is no accident that the particularly effective experimental design used by McWhirter, Crothers, and Rasheed (2000) mirrors that used in the seminal social cognitive study by Bandura (1977), in which the construct of self-efficacy was first conceived. Both studies use an experimental design and place self-efficacy in the role of dependent variable. Both studies also position learning experiences in the role of independent variable. It may therefore be argued, that this fundamental design format is the bedrock of social cognitive theory, and by extension Social Cognitive Career Theory.

Arguably, it is the experimental manipulation of the independent learning variables that will allow firm conclusions to be drawn about their causal effect on the dependent variable. This makes the study by McWhirter, Crothers, and Rasheed (2000) a particularly instructive experimental model for the design of future studies to develop, evaluate and improve the effectiveness of the prospective learning and teaching interventions, such as those suggested immediately above. Unlike many of the studies analysed in the course of the literature review, such a model affords the potential for firm conclusions to be drawn about causal effect between educational interventions and improved postsecondary destination outcomes for all young people, regardless of SES or gender.

However, it should be recognised that hard evidence of causality which can be achieved with such methods and approaches is likely to come at a cost in that they rely heavily on self-report methods of data collection. As discussed in the limitations section, the use of such methods come with their own restrictions, in that they may not capture human thinking and functioning in all its richness. Therefore, there is a clear requirement to further explore the significant effects identified in the current study in research studies which use a qualitative methodology. Such approaches

could provide a richer phenomenological view of how young people view themselves, and their personal and social environment, in relation to the challenges of the postsecondary transition. Therefore it is recommended that the continued development of the Preparedness for Postsecondary Indicator (PrePI), in terms of improved internal consistency and validity, is combined with the parallel development of qualitative methodologies. Approaches such as grounded theory, ethnography, and case study; particularly when conducted longitudinally over time, could offer rich new perspectives on how SES and gender interact and impact on young people's view of themselves, and their environment, in relation to the challenges of the postsecondary transition. Qualitative studies of how individuals overcome social and educational hardship to achieve postsecondary career success could be particularly instructive.

Conclusions

Therefore, despite the limitations identified, and the large amount of work that remains to be done, the current study has made a positive and original contribution to the psychology literature on the postsecondary transition that all young people must make as they prepare to leave school and enter the adult world of employment, education and training. In the form of the Preparing for Postsecondary Indicator (PrePI) this study has, for the first time, designed and tested using factor analysis, a short, practical, but wide-ranging instrument, based on domain-specific, parallel measures of constructs from social cognitive theory, to assess the preparedness of young people for the postsecondary transition into employment, education and training.

This necessarily represents the beginning of an ongoing process of refinement and validation, which could be taken forward by other researchers and practitioners in the future. The study has also, for the first time, applied a theoretically robust multi-dimensional measure of social economic status (SES) to investigate how a range of social cognitive career factors, relevant to the postsecondary transition, are impacted by different levels of SES. This application of a more robust measure of SES has enabled the present study to detect hitherto undetected effects of SES on a range of social cognitive career factors. These findings have enabled the present study to

effectively challenge several findings in previous studies, which may have mistakenly confirmed the null hypothesis that SES had little or no effect on a range of social cognitive career factors relevant to the postsecondary transition.

Within the context of the postsecondary transition, the study has confirmed that a range of factors previously hypothesised within the Social Cognitive Career Theory (SCCT) framework are indeed pertinent to the postsecondary transition to employment, education, and training. The study has also presented evidence to suggest that two further factors *not* previously included in the SCCT framework, including career mindset, and career scaffolding attachments, may also be particularly salient to the postsecondary transition, and therefore to SCCT in general. A case has been made, on the basis of the evidence from this current study, that these factors should be explicitly included in future research studies carried out within the SCCT framework.

The empirical results of the study provide some clear support for eight of the thirteen original hypotheses made before commencement of the study. A further two hypotheses have received some qualified support. The results have provided contradictory evidence for three of the original hypotheses. This hypothesis testing has confirmed that, within the research context, a substantially greater proportion of young people who lived in areas of higher deprivation failed to obtain a positive postsecondary destination in employment education or training, when they leave school, in comparison with young people who lived in more socially advantaged areas. It has been shown that male school leavers in the research population and in the national population are less likely to enter a positive destination on leaving school, than female school leavers. The factor analyses of high school students' responses to the pre-empirical Preparing for Postsecondary Indicator (PrePI) has provided substantial confirmation for the logical clustering of the thirteen social cognitive career factors identified in the literature review. Ten of the original thirteen pre-empirical factors were confirmed as scales without modification as a result of factor analysis and retained their original names. Three new scales were identified and were re-named in accordance with their new configuration of items. The study has also provided confirmation that six of these social cognitive career factors

showed significant differences with regard to SES, in the direction predicted by pre-empirical hypotheses.

This patterning among the social cognitive career factors could potentially contribute to an understanding of why young people who live in more socially deprived communities are significantly over represented in the population of young people who fail to obtain a positive postsecondary destination in employment, education or training. These main findings include the following. School students who lived in areas of higher social deprivation showed lower levels of self-efficacy belief that they could secure a positive postsecondary destination. They also had lower levels of vicarious experience of success in employment and education through role models. This would seem to support the possibility that the lower exposure to positive career role models experienced by students from more socially deprived areas may have reduced its potential to serve as a learning source for their self-efficacy beliefs. It has also been shown that students who lived in areas of higher social deprivation reported greater perception of career barriers. All of the above findings are congruent with the main hypotheses and predictions derived from Social Cognitive Career Theory (SCCT).

In addition, the results of the current study showed that school students who lived in areas of higher social deprivation displayed greater endorsement of a fixed, as opposed to a growth, career mindset, which meant that they were more inclined to perceive their career potential as immutable and beyond their control. This was in contrast to those who lived in areas of relatively greater social advantage, who were more disposed to view their career potential as malleable and under their control. Furthermore, students who lived in areas of higher deprivation reported fewer career scaffolding attachments, at home and with their friends, which could provide a trusted social context for conversations about their career.

Based on the findings of the current study a range of educational interventions are suggested to improve postsecondary outcomes for high school students from areas of higher social deprivation. These interventions include: (a) using positive career role models; (b) improving teaching and learning experiences in performing practical career development tasks; (c) exploring and challenging both their subjective and

objective experiences of career barriers; (d) career mindset intervention protocols; and (e) attachment fostering interventions for parents and teachers, including psycho-education and video interaction guidance. It is recommended that the relevant scales of the Preparedness for Postsecondary Indicator (PrePI) be used to provide assessment evidence to help design, target, and then empirically evaluate the impact of these proposed teaching and learning interventions on high school students living in areas experiencing different levels of social deprivation.

The study has also found that six of the social cognitive career factors showed significant differences with regard to gender. However, only two of these significant differences were in the direction that would be most apparently congruent with the observed pattern in the local and national data, which was that males were at greater risk of a negative postsecondary destination than females. It has been shown that male students reported lower levels of exposure to the learning experience of successful past performance in part time employment or work experience. In addition, male students when compared to females, reported fewer career scaffolding attachments at home and with their friends, which could provide a trusted social context for conversations about their career. Therefore, the patterning of these two social cognitive career factors could potentially contribute to an understanding of why young males are substantially over represented in the population of young people who fail to obtain a positive postsecondary destination in employment, education or training.

However, one of the most intriguing and challenging findings of the study was that four of the significant differences with regard to gender, found in social cognitive career factors, were in the opposite direction from that which would be most apparently congruent with the observed pattern in the local and national data, which was that males are at greater risk of a negative postsecondary destination than females. Against expectations males, when compared to females, were found to report greater positive destination self-efficacy beliefs; more positive career-related emotional arousal; better ability to set career goals; and perceived themselves as being more optimistic about their future careers. Therefore, this would seem to provide an important and salutary caveat, that these positively reported social cognitive career factors, on their own, may not be enough to promote a comparative

advantage in the attainment of a postsecondary destination. Thus it would appear that males, when compared with females, may in fact be *over* confident and *over* optimistic in their ability to set career goals and then obtain a positive postsecondary destination. The result with regard to the performance of career development tasks may be particularly illuminating in this regard. At higher deprivation males reported a more positive view of their performance of career development behaviours than females. However, at lower deprivation the relationship between males and females was reversed. This would seem to indicate that, for this factor, a maladaptive, positive appraisal occurred particularly in young males who also lived in areas of higher deprivation.

Despite many other findings discussed above which support the core tenets of both generic social cognitive theory and Social Cognitive Career Theory, these unexpected effects of gender on social cognitive career factors, and also the interaction effects between SES and gender, are potentially challenging to the core contention of both generic social cognitive theory and SCCT, which is that greater domain-relevant self-efficacy contributes to greater actual performance of the domain-specific target behaviour. Indeed these incongruent gender effects, and interaction effects between SES and gender, would appear to support the contrary position that career self-efficacy and career optimism, on their own, particularly in male senior high school students, may be insufficient to promote positive postsecondary destination outcomes. Targeted interventions that enable young males to generate and focus on concrete evidence of personal success in career-relevant domains may therefore be particularly effective. Such an approach may enable male high school students, preparing to leave school, to acquire self-efficacy beliefs in areas of strength that are more solidly based on real evidence of their actual ability in practice, but also sufficiently challenging to stimulate and foster further skill development.

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Appendix 1. The statement item pool for the pre-empirical Preparedness for Postsecondary Inventory (PrePI)

The statement item pool for the pre-empirical Preparedness for Postsecondary Inventory (PrePI)

1. Positive postsecondary destination self-efficacy beliefs

Rate your degree of confidence that you could perform the following actions:

- I can continue my education or get a job when I leave school, (Writer).
- I can start to progress my career when I leave school, (Writer).
- I can get into employment, education or training after school (Writer).
- I can get a positive destination when I leave school, (Writer).
- I can avoid having nothing to do after leaving school, (Writer).
- I can get a satisfying occupation in the future, (Writer).

Rate your degree of confidence that you could perform the following actions:

- Prepare a good resume, (Betz, Klein, and Taylor (1996), Career Decision-Making Self-Efficacy Scale).
- Get involved in work experience relevant to your future goals, (Betz, Klein, and Taylor (1996), Career Decision-Making Self-Efficacy Scale).
- Identify employers, firms and institutions relevant to your career possibilities, (Betz, Klein, and Taylor (1996), Career Decision-Making Self-Efficacy Scale).
- Successfully manage the job interview process, (Betz and Taylor (2013) Career Decision Self-efficacy Scale).

2. The four generic sources of career learning experiences

Rate your degree of agreement with the following statements:

Past performance

- I always feel I know what I am doing in social situations, (Anderson and Betz (2001), Sources of Social Self-Efficacy Scale).

- I have always been skilled socially, (Anderson and Betz (2001), Sources of Social Self-Efficacy Scale).
- I have already experienced some success in a part time job or work experience, (Writer).
- I have already experienced some success in my education, (Writer).

Vicarious experience

- Many adults I know have good social skills, (Anderson and Betz (2001), Sources of Social Self-Efficacy Scale).
- I know people who were talented socially, (Anderson and Betz 2001), Sources of Social Self-Efficacy Scale).
- I know someone who has been successful in their education after school, (Writer).
- I know someone who has been successful in a job, (Writer).

Social persuasion

- Older people have told me that I was skilled in social situations, (Anderson and Betz (2001), Sources of Social Self-Efficacy Scale).
- People have told me that I was easy to talk to, (Anderson and Betz (2001), Sources of Social Self-Efficacy Scale).
- I know someone I trust who tries to persuade me that I can be successful in my career after school, (Writer).
- I know someone who really believes in my ability to have a successful career, (Writer).

Emotional arousal.

- Social situations make me feel uneasy and confused, (Anderson and Betz (2001), Sources of Social Self-Efficacy Scale).
- I have usually been at ease in social situations, (Anderson and Betz (2001), Sources of Social Self-Efficacy Scale).

- I am confident that I will be able to continue my education or get a job after school and this makes me feel good, (Writer).
- I am worried that I will not be able to find something to do after school and that makes me feel bad, (Writer).

3. Career outcome expectations

- My career planning will lead to a satisfying career for me, (McWhirter, Crothers, and Rasheed (2000), Vocational Outcome Expectation Scale).
- I will be successful in my chosen career occupation, (McWhirter, Crothers, and Rasheed (2000), Vocational Outcome Expectation Scale).
- If I continue my education after school it will lead to a satisfying career for me, (Writer).
- If I take a job after school it will lead to a satisfying career for me, (Writer).
- A good career will help me get what I want out of life, (Writer).
- If I continue my education after school it will lead to a satisfying career for me, (Writer).

4. Setting career goals

- I know what I want to do in terms of an occupation or career, (Mu (1998), Career Goals Scale).
- I have a clear set of goals for my future, (Mu (1998), Career Goals Scale).
- I am sure about what I eventually want to do for a living, (Writer)
- I am unsure about what to do after school, (Writer).
- I am able to choose a career that will suit me, (Writer).
- I can make a career decision and then not worry whether it was right or wrong, (Writer).

5. Performance of career development tasks

- How much have you thought and planned about taking subjects that will help you on the job in future? (Patton, Creed, and Spooner-Lane (2005), Career Development Inventory).
- Would you go to careers teachers, career advisors, or school counsellors for information to help in making your plans for work or further education? (Patton, Creed, and Spooner-Lane (2005), Career Development Inventory).
- I have made at least one application for something I would like to do after school, (Writer).
- I have taken up opportunities to get advice on my future career, (Writer).
- I have identified an employer or education provider that could help with my career possibilities, (Writer).
- I have written a description of my skills and experience (sometimes called a CV) that shows my strengths, (Writer).
- I have practiced the skills I will need in an interview, (Writer).

6. Perceptions of contextual supports and barriers

Supports

- My parents would support me in pursuing this occupation, (Turner and Lapan (2002), Mapping Vocational Challenges).
- My sibling is supportive of my future career plans, (Ali, McWhirter, and Chronister (2005), Sibling Support Scale)
- My friends are supportive of my future career plans, (Ali, McWhirter, and Chronister (2005), Sibling Support Scale)
- My Mother/Father cares if I am successful in a career, (Farmer et al. (1981), Parent Support Scale).
- I feel that my circumstances are helping me to have a satisfying career, (Writer).

Barriers

- I feel there is nothing in the world around me to stop me having a satisfying career, (Writer).
- I feel there are things getting in the way of my career choices, (Writer).
- I feel that my circumstances are preventing me doing what I want in my career, (Writer).

Participants were asked to rate the following barriers with respect to likelihood, magnitude and difficulty to overcome.

- Family responsibilities, (McWhirter, Crothers, and Rasheed (2000), Perception of Educational Barriers Scale).
- Teachers don't support my plans, (McWhirter, Crothers, and Rasheed (2000), Perception of Educational Barriers Scale).
- Parents don't support my plans, (McWhirter, Crothers, and Rasheed (2000), Perception of Educational Barriers Scale).
- Friends don't support my plans, (McWhirter, Crothers, and Rasheed (2000), Perception of Educational Barriers Scale).
- None of my friends are doing what I am doing, (McWhirter, Crothers, and Rasheed (2000), Perception of Educational Barriers Scale).
- Not wanting to move away, (McWhirter, Crothers, and Rasheed (2000), Perception of Educational Barriers Scale).
- Not enough money, (McWhirter, Crothers, and Rasheed (2000), Perception of Educational Barriers Scale).

7. Career optimism and pessimism

Optimism

- In uncertain times I usually expect the best, (Scheier, Carver, and Bridges (1994), Life Orientation Test-Revised).

- I'm always optimistic about my future, (Scheier, Carver, and Bridges (1994), Life Orientation Test-Revised).
- Overall, I expect more good things to happen to me than bad, (Scheier, Carver, and Bridges (1994), Life Orientation Test-Revised).
- I'm always optimistic about my future after school, (Writer).
- In my career after school, I expect more good things to happen to me than bad, (Writer).

Pessimism

- If anything can go wrong for me it will (Scheier, Carver, and Bridges (1994) Life Orientation Test-Revised)
- I hardly ever expect things to go my way (Scheier, Carver, and Bridges (1994) Life Orientation Test-Revised)
- I rarely count on good things happening to me (Scheier, Carver, and Bridges (1994) Life Orientation Test-Revised).
- Having a satisfying career is going to be difficult for me, (Writer).
- Few careers are really interesting, (Writer).

8. Career attributions

- The job I get will depend mainly on how well I do and how hard I try, (Millar and Shevlin (2007), Career Locus of Control Scale).
- If I get a good job it will be a direct result of my own ability and motivation, (Millar and Shevlin (2007), Career Locus of Control Scale).
- Luck is the most important factor in determining whether I will get the job I want, (Millar and Shevlin (2007), Career Locus of Control Scale).
- There is nothing I can do to increase my chances of getting a decent job, (Millar and Shevlin (2007), Career Locus of Control Scale).
- It doesn't matter what career I want – what will be is in the hands of other people, like teachers and employers, (Millar and Shevlin (2007), Career Locus of Control Scale).
- Choosing the right career mainly depends on luck. I have very little influence over the career I will finally have, (Writer).

- The opportunities that are available to me after school depend on what I do, (Writer)
- Getting a good career is under my control, (Writer).
- My career prospects depend on things outside my control, (Writer).

9. Career mindset

- I have a certain ability level, and it is something that I can't do much about, (Erdley and Dweck (1993), Implicit Self-Theory Scale).
- I can change the way I act in academic contexts but I can't change my true ability level, (Erdley and Dweck (1993), Implicit Self-Theory Scale).
- I can learn new things but how intelligent I am stays the same, (Erdley and Dweck (1993), Implicit Self-Theory Scale).
- I can do things to perform better in school, but I can't change my real ability, (Erdley and Dweck (1993), Implicit Self-Theory Scale).
- My ability is something about me I can't change very much, (Erdley and Dweck (1993), Implicit Self-Theory Scale).
- I can change my ability to succeed in whatever I do after school, (Writer).
- If I fail at something it means that I have reached the limit of my abilities, (Writer).
- If I fail at something it means I have to try harder, (Writer).
- I like to try easy things because I am more likely to show good ability, (Writer).
- I like to try difficult things even if I fail because that is how I learn, (Writer).

10. Career scaffolding attachments

- My friends understand me, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- My friends listen to what I have to say, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- I like to get my friends point of view on things I am concerned about, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).

- When we discuss things my friends care about my point of view, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- My friends help me to understand myself better, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- I can tell my friends about my problems and worries, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- My friends don't understand what I am going through these days, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- I feel alone or apart when I am with these friends, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- I feel angry with my friends, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- It seems as if my friends are irritated with me for no reason, (Armsden and Greenberg (1987), Inventory of Parent and Peer Attachment).
- I have someone I feel close to at home that I can trust to discuss my career, (Writer).
- I have someone close to me at home who encourages me to talk about my feelings about my career, (Writer).
- When it comes to choosing a career I feel I am on my own, (Writer).
- I know an adult in the school who will be there for me when I need to talk about my career, (Writer).
- I have a friend of the same sex with whom I can discuss my career, (Writer).
- I have a friend of the opposite sex with whom I can discuss my career, (Writer).
- I find it difficult to depend on others to get help with my career plans, (Writer).

Appendix 2. Guidelines for proof reading the experimental Preparedness for Postsecondary Inventory (PrePI)

Guidelines for proof reading the experimental Preparedness for Postsecondary Inventory (PrePI)

The study aims to understand what young people think about as they get ready to leave school and begin to consider what they would like to do after school. Different young people may hold different beliefs or think different things about leaving school to start a career.

It is hoped that this study will help teachers, who work with young people preparing to leave school, to better understand what young people think. The more information teachers have about how young people think about leaving school, the better they will be able to plan lessons and other experiences to enable young people to have satisfying careers after school.

A range of young people who are in the final years of school will be invited to take part so we can find out about the range of different beliefs about leaving school that are held by different young people. Please could you use your expertise to examine each of the items for clarity, grammar, spelling and naturalness of expression, so that they would be understood by a wide range of 15-18 year olds in Scottish schools. It would be helpful if you could identify any changes that would help make the questionnaire accessible to as wide a range of young people without losing the sometimes quite subtle sense of the questions.

Appendix 3. The 50 items of the pre-empirical Preparedness for Postsecondary Inventory (PrePI) arranged by construct subgroup

The 50 items of the pre-empirical Preparedness for Postsecondary Inventory (PrePI) arranged by construct subgroup

Sub-group 1. Self-efficacy beliefs about achieving a positive postsecondary destination, with a single construct.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

1. I can continue my education or get a job when I leave school.
2. I can start a good career when I leave school.
3. I can get into employment, education or training after school.
4. I can get into something good when I leave school.
5. I can avoid having nothing to do after leaving school.
6. I can get a good job in the future.

Sub-group 2. The generic sources of learning experiences with four constituent constructs

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

Past Performance

7. I have already experienced some success in my education.
8. I have already experienced some success in a part-time job or work experience.

Vicarious Experience

9. I know someone who has been successful in going to college or university after school.
10. I know someone who has been successful in a job.

Social Persuasion

11. I know someone I trust who tries to persuade me that I can be successful in my career after school.
12. I know someone who really believes in my ability to have a successful career.

Emotional Arousal

13. I am confident that I will be able to continue my education or get a job after school and this makes me feel good.
14. I am worried that I will not be able to find something to do after school and that makes me feel bad.

Sub-group 3. Eight enabling constructs.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

Career Outcome Expectations

15. My career planning will lead to a satisfying career for me.
16. A good career will help me get what I want out of life.
17. If I continue my education after school it will lead to a satisfying career for me.
18. If I take a job after school it will lead to a satisfying career for me.

Setting Career Goals

19. I am sure about what I eventually want to do for a living.
20. I am unsure about what to do after school.
21. I am able to choose a career that will suit me.
22. I can make a career decision and then not worry whether it was right or wrong.

Performing Career Development Tasks

23. I have made at least one application for something I would like to do after school.

24. I have taken up opportunities to get advice on my future career.
25. I have identified an employer or education provider that could help with my career possibilities.
26. I have written a description of my skills and experience (sometimes called a CV) that shows my strengths.
27. I have practiced the skills I will need in an interview.

Perceptions of Contextual Supports and Barriers

28. I feel there is nothing in the world around me to stop me having a satisfying career.
29. I feel that my circumstances are helping me to have a satisfying career.
30. I feel there are things getting in the way of my career choices.
31. I feel that my circumstances are preventing me doing what I want in my career.

Career Optimism and Pessimism

32. I'm always optimistic about my future after school.
33. In my career after school, I expect more good things to happen to me than bad.
34. Few careers are really interesting.
35. Having a satisfying career is going to be difficult for me.

Career Attributions

36. Choosing the right career mostly depends on luck.
37. The opportunities that are available to me after school depend on what I do.
38. Getting a good career is under my control.
39. My career prospects depend on things I can't control.

Career Mindset

40. I can grow my ability to have a good career.
41. My ability to have a good career is already decided.
42. Someone's ability to have a good career is something they can't change very much.

43. Everyone has a certain ability to have a good career, and it is something they can't do much about.

Career Scaffolding Attachments

44. I have someone I feel close to at home that I can trust to discuss my career.
45. I have someone close to me at home who encourages me to talk about my feelings about my career.
46. I know an adult in the school who will be there for me when I need to talk about my career.
47. I find it difficult to depend on others to get help with my career plans.
48. I have a friend of the same sex with whom I can discuss my career.
49. I have a friend of the opposite sex with whom I can discuss my career.
50. When it comes to choosing a career I feel I am on my own.

Appendix 4. Preparedness for Postsecondary Inventory (PrePI) for young people preparing to leave school (Pilot Study)

Preparedness for Postsecondary Inventory (PrePI) for young people preparing to leave school (Pilot Study)

Your name_____

Your class_____

This project is being carried out to help find out what young people are thinking, feeling and doing as they prepare to leave school. Your answers will be kept strictly confidential. The purpose of the project is to enable teachers, parents and others to help young people prepare themselves for the important transition from school to the world of employment, education and training after school

Part 1. Measuring the things you find easy and hard as you prepare to leave school

The first part of the questionnaire is designed to help us get a better understanding of how confident young people are that they can do certain things as they prepare to leave school. Please rate how confident you are that you can do each of the things described below by placing a cross on the line that goes from "Complete confidence" at one end to "No confidence at all" at the other end. To familiarise yourself with the rating form, please complete the practice items first.

Look at the sentences below. Please read each one and then see how much confidence you have that you could carry out each of the tasks described. When you have decided, place a cross on the line below the question to show how much confidence you have.

Practice items

- I can sing in tune.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

- I can say the alphabet backwards.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

Part 1 questionnaire items

1. I can start a good career when I leave school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

2. I can get into employment, education or training after school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

3. I can get into something good when I leave school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

4. I can continue my education or get a job when I leave school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

5. I can avoid having nothing to do after leaving school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

6. I can get a good job in the future.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

Part 2. Finding out about some of the things you are thinking, feeling and doing as you prepare to leave school.

The second part of the questionnaire is designed to help us get a better understanding of the things young people are thinking, feeling and doing as they prepare to leave school.
This second part of the questionnaire uses a different rating form. Please rate how much you agree with each of the statements below by placing a cross on the line that goes from "Strongly agree" at one end to "Strongly disagree" at the other end. To familiarise yourself with this new rating form, please complete the practice items first.

Look at the sentences below. Please read each one and then see whether you agree or not with what has been said. When you have decided, place a cross on the line below the question to show how much you agree or disagree.

Practice items

- I like watching television.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

- I like rainy days

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

Part 2 questionnaire items

7. If I continue my education after school it will lead to a satisfying career for me.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

8. I am confident that I will be able to continue my education or get a job after school and this makes me feel good.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

9. In my career after school, I expect more good things to happen to me than bad.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

10. I can grow my ability to have a good career.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

11. A good career will help me get what I want out of life.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

12. I know someone who has been successful in a job.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

13. I have identified an employer or education provider that could help with my career possibilities.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

14. I know an adult in the school who will be there for me when I need to talk about my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

15. My career planning will lead to a satisfying career for me.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

16. I know someone who really believes in my ability to have a successful career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

17. Someone’s ability to have a good career is something they can’t change very much.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

18. Getting a good career is under my control.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

19. If I take a job after school it will lead to a satisfying career for me.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

20. I have a friend of the same sex with whom I can discuss my career.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

21. I have someone close to me at home who encourages me to talk about my feelings about my career.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

22. I am unsure about what to do after school.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

23. My ability to have a good career is already decided.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

24. I am worried that I will not be able to find something to do after school and that makes me feel bad.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

25. When it comes to choosing a career I feel I am on my own.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

26. I have a friend of the opposite sex with whom I can discuss my career.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

27. I have made at least one application for something I would like to do after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

28. I am able to choose a career that will suit me.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

29. I feel that my circumstances are helping me to have a satisfying career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

30. I find it difficult to depend on others to get help with my career plans.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

31. I have already experienced some success in my education.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

32. I have written a description of my skills and experience (sometimes called a CV) that shows my strengths.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

33. Few careers are really interesting.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

34. I have practiced the skills I will need in an interview.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

35. I feel that my circumstances are preventing me doing what I want in my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

36. I have taken up opportunities to get advice on my future career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

37. My career prospects depend on things I can't control.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

38. I can make a career decision and then not worry whether it was right or wrong.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

39. I feel there are things getting in the way of my career choices.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

40. I'm always optimistic about my future after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

41. I am sure about what I eventually want to do for a living.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

42. I feel there is nothing in the world around me to stop me having a satisfying career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

43. Choosing the right career mostly depends on luck.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

44. I know someone who has been successful in going to college or university after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

45. I have someone I feel close to at home that I can trust to discuss my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

46. I know someone I trust who tries to persuade me that I can be successful in my career after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

47. The opportunities that are available to me after school depend on what I do.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

48. Everyone has a certain ability to have a good career, and it is something that they can't do much about.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

49. I have already experienced some success in a part-time job or work experience.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

50. Having a satisfying career is going to be difficult for me.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

End of Questionnaire

Appendix 5. Participant Information Sheet (Pilot Study and Focus Group)

Participant Information Sheet (Pilot Study and Focus Group)

TITLE OF PROJECT: Finding out what young people think about leaving school.

INVITATION TO TAKE PART IN A RESEARCH STUDY

You are being invited to take part in a research study that is being carried out by Walter Douglas, who is an Educational Psychologist with Glasgow City Council, in part fulfilment of a Doctorate Degree in Educational Psychology at the University of Dundee.

Before you decide whether you would like to take part, it is important that you understand why the research is being carried out and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study if you wish.

PURPOSE OF THE RESEARCH STUDY

The study aims to understand what young people think about as they get ready to leave school and begin to consider what they would like to do after school. Different people may hold different beliefs or think different things about leaving school to start a career.

It is hoped that the study will help teachers who work with young people who are preparing to leave school to better understand what young people think. The more information teachers have about how young people think about leaving school the better they will be able to plan lessons and other experiences to enable young people to have satisfying careers after school.

A range of young people who are in the final years of school will be invited to take part so we can find out about the range of different beliefs about leaving school that are held by different young people. The information you give will be used to try out a questionnaire to find out if the questions it asks seem sensible and relevant to the school leavers who complete the questionnaire. The young people who participate will also be asked if they can think of other, better questions that might be even more helpful to find out what young people think about as they move on from school to the world of employment, education and training after school. This information will therefore be used to help produce the best questionnaire possible to be used in a further part of the study about leaving school. More information about this part is available on request.

Why have I been invited?

You are being invited to take part in this study because you are a young person who is in the final years of school and you may be beginning to think about what you would like to do after you leave school. We hope to recruit about 16 young people in total for this part of the study.

Your participation in this research would benefit other young people preparing to leave school. The information gained will be used to help teachers understand even better what young people are thinking, feeling and doing as they prepare to leave school, so they will be able to help them to make a successful transition into employment education or training after school.

TIME COMMITMENT

The study will require you to participate for one hour. This will be done as part of your normal timetabled time for Personal and Social Development in your school. You will only need to participate on one occasion. The meeting will take place at your school.

There will be two tasks to complete.

What tasks do I have to do?	How long will it take?
1. Complete a short questionnaire with fifty short statements. You will be asked to mark the questionnaire to show how much you agree or disagree with each statement.	40 minutes
2. Participate in a group discussion about how good or bad the statements in the questionnaire were at finding out what you think about leaving school. You will also be asked if you can think of better questions.	20 minutes

What will I have to do?

Walter Douglas, the Researcher, will be present throughout the hour. He will give you the questionnaire and make sure you know what you are being asked to do. During the group discussion he will be the facilitator. After you have completed the questionnaire he will ask some questions about what you thought of the questionnaire. These are the questions he will ask.

1. Did the questionnaire allow you to communicate what you are thinking, feeling and doing as you prepare to leave school?
2. Which were the best questions?
3. Why?
4. What were the worst questions?
5. Why?
6. Can you think of questions that should be asked to do this better?

Everyone will have a chance to discuss what they think about the questions. You can contribute as much or as little as you want, that is OK. The discussion **will be audio recorded** to allow the Researcher to listen again and make sure he did not miss any important information.

At the end there will be the opportunity for you to ask any questions or discuss any matters arising from the task.

TERMINATION OF PARTICIPATION

You may decide to stop being a part of the research study at any time without explanation. This would not affect the standard of education that you receive or access to any service.

RISKS

There are no known risks for you in this study.

CONFIDENTIALITY/ANONYMITY

The answers that you give will only be used for this study. Only the main researcher (Walter Douglas) and his two academic supervisors at the University of Dundee will have access to the information collected from you and other young people leaving school.

Following participation each individual's data will be allocated a number, and will no longer be identified by name. Only the main researcher and the two academic supervisors will have access to the names associated with the specific number. These measures are taken very seriously to protect the anonymity of the participants.

The audio recordings of the session will be transcribed, and both the audio recording and the transcription will be kept secure and anonymous. The collective data will be stored in accordance with the Data Protection Act (1998) and destroyed after a period of 10 years.

The answers and opinions that you give will be used to produce an improved set of questionnaire statements about leaving school which will be used in the second part of the study.

What will happen to the results of the research study?

It is intended that results of the research will be written up for publication in a journal which is aimed specially at research into education and what helps young people be successful in school and in their careers after school. It is hoped that by doing this, the results will be spread widely to teachers and other professionals who are trying to help young people make a successful transition from school to a satisfying career.

FOR FURTHER INFORMATION ABOUT THIS RESEARCH STUDY

The researcher, Walter Douglas, will be glad to answer your questions about this study at any time.

If you want to find out about the final results of this study, you should contact Walter Douglas.

You may contact him at Glasgow Psychological Service, Glasgow City Council, 3 Port Street, Glasgow G3 8HY or Telephone Number 0141 276 2070 or at walter.douglas@glagow.gov.uk

Accessibility

This information sheet can be made available in other formats for people who may need this due to sensory, communication or reading difficulties.

Translation and/or interpreter services will be made available as required to parents who have English as an additional language.

Should you require any of the above please contact the researcher to arrange this.

The University Research Ethics Committee of the University of Dundee has reviewed and approved this research study.

Appendix 6. Young Person's Informed Consent (Pilot questionnaire and Focus Group)

Young Person's Informed Consent (Pilot questionnaire and Focus Group)

TITLE OF PROJECT: Finding out what young people think about leaving school.

The Purpose of the Study

The study aims to understand what young people think about as they get ready to leave school and begin to consider what kind of career they would like to have after school. Different people may hold different beliefs or think different things about leaving school to start a career.

It is hoped that the study will help teachers and others who work with young people leaving school to better understand what it feels like to leave school. The more information teachers and others have about what young people think about leaving school the better they will be able to plan lessons and other experiences to enable young people to have satisfying careers after school.

By signing below you are agreeing that you have read and understood the Participant Information Sheet and that you agree to take part in this research study, including your permission for the focus group to be audio recorded.

Participant's name_____

_____ _____
Participant's signature Date

_____
Printed name of person obtaining consent

_____
Signature of person obtaining consent

Appendix 7. Parent's Informed Consent (Pilot questionnaire and Focus Group)

Parent's Informed Consent (Pilot questionnaire and Focus Group)

TITLE OF PROJECT: Finding out what young people think about leaving school.

The Purpose of the Study

The study aims to understand what young people think about as they get ready to leave school and begin to consider what kind of career they would like to have after school. Different people may hold different beliefs or think different things about leaving school to start a career after school.

It is hoped that the study will help teachers and others who work with young people leaving school to better understand what it feels like to leave school. The more information teachers and others have about what young people think about leaving school the better they will be able to plan lessons and other experiences to enable young people to have satisfying careers after school.

By signing below you are agreeing that you have read and understood the Participant Information Sheet and that you agree that your son/daughter can take part in this research study, including your permission for the focus group to be audio recorded.

Young person's name_____

_____ _____

Parent's signature Date

_____

Printed name of person obtaining consent

_____

Signature of person obtaining consent

Appendix 8. Focus Group Question Sheet

Focus Group Question Sheet

Purpose

To find out how good the questionnaire was at finding out what young people think, feel and do as they prepare to leave school

Outline of the focus group

A. Introduction

- Recap on the project
- Procedure for the focus group
- Procedure
- Ground rules
- Any questions?

B. Questions

These are the questions I will ask. However, I may ask some additional questions.

1. Did the questionnaire allow you to communicate what you are thinking, feeling and doing as you prepare to leave school?
2. Which were the best questions?
3. Why?
4. Which were the worst questions?
5. Why?
6. Can you think of questions that should be asked to do this better?

C. Conclusion

- Summary
- Thanks
- Debriefing

Appendix 9. Preparedness for Postsecondary Inventory (PrePI) for young people preparing to leave school (Main Study)

Preparedness for Postsecondary Inventory (PrePI) for young people preparing to leave school (Main Study)

Your name_____

Your class_____

This project is being carried out to help find out what young people are thinking, feeling and doing as they prepare to leave school. Your answers will be kept strictly confidential. The purpose of the project is to enable teachers, parents and others to help young people prepare themselves for the important transition from school to the world of employment, education and training after school

Part 1. Measuring the things you find easy and hard as you prepare to leave school

The first part of the questionnaire is designed to help us get a better understanding of how confident young people are that they can do certain things as they prepare to leave school. Please rate how confident you are that you can do each of the things described below by placing a cross on the line that goes from "Complete confidence" at one end to "No confidence at all" at the other end. To familiarise yourself with the rating form, please complete the practice items first.

Look at the sentences below. Please read each one and then see how much confidence you have that you could carry out each of the tasks described. When you have decided, place a cross on the line below the question to show how much confidence you have.

Practice items

- I can sing in tune.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

- I can say the alphabet backwards.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

Part 1 questionnaire items

1. I can start a good career when I leave school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

2. I can get into employment, education or training after school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

3. I can get into something good when I leave school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

4. I can continue my education or get a job when I leave school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

5. I can avoid having nothing to do after leaving school.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

---

6. I can get a good job in the future.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

Part 2. Finding out about some of the things you are thinking, feeling and doing as you prepare to leave school.

The second part of the questionnaire is designed to help us get a better understanding of the things young people are thinking, feeling and doing as they prepare to leave school. This second part of the questionnaire uses a different rating form. Please rate how much you agree with each of the statements below by placing a cross on the line that goes from "Strongly agree" at one end to "Strongly disagree" at the other end. To familiarise yourself with this new rating form, please complete the practice items first.

Look at the sentences below. Please read each one and then see whether you agree or not with what has been said. When you have decided, place a cross on the line below the question to show how much you agree or disagree.

Practice items

- I like watching television.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

- I like rainy days

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

Part 2 questionnaire items

7. If I continue my education after school it will lead to a satisfying career for me.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

8. I am confident that I will be able to continue my education or get a job after school and this makes me feel good.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

9. In my career after school, I expect more good things to happen to me than bad.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

10. I can grow my ability to have a good career.

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

---

11. A good career will help me get what I want out of life.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

12. I know someone who has been successful in a job.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

13. I have identified an employer or education provider that could help with my career possibilities.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

14. I know an adult in the school who will be there for me when I need to talk about my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

15. My career planning will lead to a satisfying career for me.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

16. I know someone who really believes in my ability to have a successful career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

17. Someone’s ability to have a good career is something they can’t change very much.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

18. Getting a good career is under my control.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

19. If I take a job after school it will lead to a satisfying career for me.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

20. I have a friend of the same sex with whom I can discuss my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

21. I have someone close to me at home who encourages me to talk about my feelings about my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

22. I am unsure about what to do after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

23. My ability to have a good career is already decided.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

24. I am worried that I will not be able to find something to do after school and that makes me feel bad.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

25. When it comes to choosing a career I feel I am on my own.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

26. I have a friend of the opposite sex with whom I can discuss my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

27. I have made at least one application for something I would like to do after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

28. I am able to choose a career that will suit me.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

29. I feel that my circumstances are helping me to have a satisfying career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

30. I find it difficult to depend on others to get help with my career plans.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

31. I have already experienced some success in my education.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

32. I have written a description of my skills and experience (sometimes called a CV) that shows my strengths.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

33. Few careers are really interesting.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

34. I have practiced the skills I will need in an interview.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

35. I feel that my circumstances are preventing me doing what I want in my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

36. I have taken up opportunities to get advice on my future career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

37. My career prospects depend on things I can't control.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

38. I can make a career decision and then not worry whether it was right or wrong.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

39. I feel there are things getting in the way of my career choices.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

40. I'm always optimistic about my future after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

41. I am sure about what I eventually want to do for a living.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

42. I feel there is nothing in the world around me to stop me having a satisfying career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

43. Choosing the right career mostly depends on luck.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

44. I know someone who has been successful in going to college or university after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

45. I have someone I feel close to at home that I can trust to discuss my career.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

46. I know someone I trust who tries to persuade me that I can be successful in my career after school.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

47. The opportunities that are available to me after school depend on what I do.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

48. My natural ability to have a good career is something that I can’t alter.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

49. I have already experienced some success in a part-time job or work experience.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

---

50. Having a satisfying career is going to be difficult for me.

Strongly Disagree										Strongly Agree
0	10	20	30	40	50	60	70	80	90	100

End of Questionnaire

Appendix 10. Participant Information Sheet (Main Study)

Participant Information Sheet (Main Study)

TITLE OF PROJECT: **Finding out what young people think about leaving school.**

INVITATION TO TAKE PART IN A RESEARCH STUDY

You are being invited to take part in a research study that is being carried out by Walter Douglas, who is an Educational Psychologist for Glasgow City Council, in part fulfilment of a Doctorate Degree in Educational Psychology at the University of Dundee.

Before you decide whether you would like to take part, it is important that you understand why the research is being carried out and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study if you wish.

PURPOSE OF THE RESEARCH STUDY

The study aims to understand what young people think about as they get ready to leave school and begin to consider what they would like to do after school. Different people may hold different beliefs or think different things about leaving school to start a career.

It is hoped that the study will help teachers and others who work with young people who are preparing to leave school to better understand what young people think. The more information teachers have about how young people think about leaving school the better they will be able to plan lessons and other experiences to enable young people to have satisfying careers after school.

A range of young people who are in the final years of school will be invited to take part so we can find out about the range of different beliefs about leaving school that are held by different young people.

Why have I been invited?

You are being invited to take part in this study because you are a young person who is in the final years of school and you may be beginning to think about what you would like to do after you leave school. We hope to recruit about 1000 young people in total.

Your participation in this research would benefit other young people preparing to leave school. The information gained will be used to help teachers understand even better what young people are thinking, feeling and doing as they prepare to leave school and so they will be able to help them to make a successful transition into employment education or training after school.

TIME COMMITMENT

The study will require you to participate for one hour. This will be done as part of your normal timetabled time for Personal and Social Development in your school. You will only need to meet with me on one occasion. The meeting will take place at your school.

When we meet there will one task to complete.

What task do I have to do?	**How long will it take?**
1. Complete a short questionnaire with fifty short statements. You will be asked to mark the questionnaire to show how much you agree or disagree with each statement	40 minutes

I will be present throughout the hour. I will give you the questionnaire and make sure you know what you are being asked to do.

At the end there will be the opportunity for you to ask any questions or discuss any matters arising from the task.

TERMINATION OF PARTICIPATION

You may decide to stop being a part of the research study at any time without explanation. This would not affect the standard of education that you receive or access to any service.

RISKS

There are no known risks for you in this study.

CONFIDENTIALITY/ANONYMITY

The answers that you give will only be used for this study. Only the main researcher (Walter Douglas) and his two academic supervisors at the University of Dundee will have access to the information collected from you and other young people leaving school.

Following participation each individual's data will be allocated a number, and will no longer be identified by name. Only the main researcher and the two academic supervisors will have access to the names associated with the specific number. These measures are taken very seriously to protect the anonymity of the participants. However, the anonymous collective data will be stored in accordance with the Data Protection Act (1998) and destroyed after a period of 10 years.

What will happen to the results of the research study?

It is intended that results of the research will be written up for publication in a journal which is aimed specially at research into education and what helps young people be successful in school and in their careers after school. It is hoped that by doing this that the results will be spread widely to teachers and other professionals who are trying to help young people make a successful transition from school to a satisfying career.

FOR FURTHER INFORMATION ABOUT THIS RESEARCH STUDY

The researcher, Walter Douglas, who is an Educational Psychologist at Glasgow City Council, will be glad to answer your questions about this study at any time.

If you want to find out about the final results of this study, you should contact Walter Douglas.

You may contact him at Glasgow Psychological Service, Glasgow City Council, 3 Port Street, Glasgow G3 8HY or Telephone Number 0141 276 2070 or at walter.douglas@glagow.gov.uk

Accessibility

This information sheet can be made available in other formats for people who may need this due to sensory, communication or reading difficulties.

Translation and/or interpreter services will be made available as required to parents who have English as an additional language.

Should you require any of the above please contact the researcher to arrange this.

The University Research Ethics Committee of the University of Dundee has reviewed and approved this research study.

Appendix 11. Young person's Informed Consent Form (Main Study)

Young person's Informed Consent Form (Main Study)

TITLE OF PROJECT: Finding out what young people think about leaving school.

The Purpose of the Study

The study aims to understand what young people think about as they get ready to leave school and begin to consider what kind of career they would like to have after school. Different people may hold different beliefs or think different things about leaving school to start a career after school.

It is hoped that the study will help teachers and others who work with young people leaving school to better understand what it feels like to leave school. The more information teachers and others have about what young people think about leaving school the better they will be able to plan lessons and other experiences to enable young people to have satisfying careers after school.

By signing below you are agreeing that you have read and understood the Participant Information Sheet and that you agree to take part in this research study.

Participant's name_____

_____ _____
Participant's signature Date

_____
Printed name of person obtaining consent

_____
Signature of person obtaining consent

Appendix 12. Parent's Informed Consent Form (Main Study)

Parent's Informed Consent Form (Main Study)

PARENT'S INFORMED CONSENT FORM
(Main Study)

TITLE OF PROJECT: **What it is like for me: an exploration of the beliefs that young people hold about their readiness to leave school.**

The Purpose of the Study

The study aims understand what young people think about as they get ready to leave school and begin to consider what kind of career they would like to have after school. Different people may hold different beliefs or think different things about leaving school to start a career after school.

It is hoped that the study will help teachers and others who work with young people leaving school to better understand what it feels like to leave school. The more information teachers and others have about what young people think about leaving school the better they will be able to plan lessons and other experiences to enable young people to have satisfying careers after school.

By signing below you are agreeing that you have read and understood the Participant Information Sheet and that you agree that your son/daughter can take part in this research study.

Young person's name_____

_____ _____
Parent's signature Date

_____
Printed name of person obtaining consent

_____
Signature of person obtaining consent

Appendix 13. The final 38 items for the post-empirical Preparedness for Postsecondary Inventory (PrePI) arranged by construct sub-group

The final 38 items for the post-empirical Preparedness for Postsecondary Inventory (PrePI) arranged by construct sub-group

Sub-group 1. Self-efficacy beliefs about achieving a positive postsecondary destination.

No confidence at all — Complete confidence

0 10 20 30 40 50 60 70 80 90 100

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1. I can get into something good when I leave school.
2. I can continue my education or get a job when I leave school.
3. I can get into employment, education or training after school.

Sub-group 2. The generic sources of learning experiences

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

Past Performance

4. I have already experienced some success in a part-time job or work experience.

Vicarious Experience

5. I know someone who has been successful in going to college or university after school.
6. I know someone who has been successful in a job.

Social Persuasion

7. I know someone who really believes in my ability to have a successful career.
8. I know someone I trust who tries to persuade me that I can be successful in my career after school.

Emotional Arousal

9. I am worried that I will not be able to find something to do after school and that makes me feel bad.
10. I am confident that I will be able to continue my education or get a job after school and this makes me feel good.

Sub-group 3. Eight enabling social cognitive career factors

Strongly Disagree — Strongly Agree

0 10 20 30 40 50 60 70 80 90 100

Career Outcome Expectations

11. A good career will help me get what I want out of life.
12. My career planning will lead to a satisfying career for me.
13. If I continue my education after school it will lead to a satisfying career for me.

Setting Career Goals

14. I am sure about what I eventually want to do for a living.
15. I am able to choose a career that will suit me.
16. I am unsure about what to do after school.

Performing Career Development Tasks

17. I have made at least one application for something I would like to do after school.
18. I have written a description of my skills and experience (sometimes called a CV) that shows my strengths.
19. I have practiced the skills I will need in an interview.
20. I have taken up opportunities to get advice on my future career.
21. I have identified an employer or education provider that could help with my career possibilities.

Perceived Career Barriers

22. I feel that my circumstances are preventing me doing what I want in my career.
23. I feel there are things getting in the way of my career choices.
24. Having a satisfying career is going to be difficult for me.

Career Optimism

25. I feel there is nothing in the world around me to stop me having a satisfying career.
26. Getting a good career is under my control.
27. I'm always optimistic about my future after school.
28. If I take a job after school it will lead to a satisfying career for me.

Career Mindsets

29. Someone's ability to have a good career is something they can't change.
30. My natural ability to have a good career is something that I can't alter.
31. Choosing the right career mostly depends on luck.
32. My ability to have a good career is already decided.

Career Scaffolding Attachments

33. I have someone close to me at home who encourages me to talk about my feelings about my career.
34. I have someone I feel close to at home that I can trust to discuss my career.
35. I have a friend of the same sex with whom I can discuss my career.
36. I have a friend of the opposite sex with whom I can discuss my career.

Career Isolation

37. I find it difficult to depend on others to get help with my career plans.
38. When it comes to choosing a career I feel I am on my own.